

U.S. NAVY

NWP 3-09.11M
(Formerly NWP 22-2 (Rev.C))

U.S. MARINE CORPS

FMFM 1-7

SUPPORTING ARMS IN AMPHIBIOUS OPERATIONS

**DEPARTMENT OF THE NAVY
OFFICE OF THE CHIEF OF NAVAL OPERATIONS AND
HEADQUARTERS, U.S. MARINE CORPS**



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DEPARTMENT OF THE NAVY
NAVAL DOCTRINE COMMAND
8952 FIRST STREET, SUITE 200
NORFOLK VA 23511-3790


March 1995

LETTER OF PROMULGATION

1. NWP 3-09.11M/FMFM 1-7, Supporting Arms In Amphibious Operations, is an Unclassified naval warfare publication. It shall be handled in accordance with NWP 1-01, The Naval Warfare Publication System.
2. NWP 3-09.11M/FMFM 1-7 is effective upon receipt and supersedes NWP 22-2 (Rev. C)/FMFM 1-7, Supporting Arms In Amphibious Operations, which shall be destroyed without report.

BY DIRECTION OF THE COMMANDANT OF
THE MARINE CORPS


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Lieutenant General, U.S. Marine Corps
Commanding General
Marine Corps Combat Development Command
Quantico, Virginia


F.L. LEWIS
Rear Admiral, U.S. Navy
Commander, Naval Doctrine Command

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U.S. Navy Distribution

NWP 3-09.11M: SUPPORTING ARMS IN AMPHIBIOUS OPERATIONS

SNDL PART I

Paper/Micro

21A1	Commander in Chief, U.S. Atlantic Fleet		2
21A3	Commander in Chief, U.S. Naval Forces, Europe		
	ONLY: CINCUSNAVEUR LONDON UK	1	
22A	Fleet Commanders	1	
23A2	Naval Force Commanders PAC		
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23B2	Special Force Commanders PAC		
	ONLY: COMCARSTRIKEFORSEVENTHFLT	1	
23B3	Special Force Commanders EUR		
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24G	Submarine Force Commanders		1
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24H2	Fleet Training Command PAC		1
24J1	Fleet Marine Force Command LANT	1	1
24J2	Marine Corps Force Command PAC	1	1
24J3	Marine Corps Forces EUR		1
25A	Mine Warfare Command		1
25A1	Mine Countermeasures Group		
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26A1	Amphibious Group LANT		2
26A2	Amphibious Group PAC		
	ONLY: COMPHIBGRU THREE SAN DIEGO CA	1	
	ONLY: COMPHIBGRU ONE	2	
26D2	Seal Team and Seal Delivery Vehicle Team and Detachment PAC		
	ONLY: SEAL TEAM ONE	1	
26E1	Amphibious Unit LANT		
	ONLY: COMSPECBOATRON TWO DET PBC ONE,	1	
	SPECBOATU TWO TWO		
	ONLY: SPECBOATU TWO ZERO		1
26E2	Amphibious Unit PAC		
	ONLY: SPECBOATU ELEVEN, SPECBOATU TWELVE		1
26F	Operational Test and Evaluation Force	1	

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U.S. Navy Distribution (continued)

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26R	Mobile Inshore Undersea Warfare Unit and Group		1
26CC	Fleet Coordinating Group	1	
26FF	Mine Warfare Inspection Group		1
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	ONLY: COMNAVSPECWARGRU TWO		1
	ONLY: NAVSPECWARUNIT TWO	1	
26HHH1	Command and Control Warfare Group LANT		1
26SSS	Medical Treatment Facility		
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28A1	Carrier Group LANT		
	ONLY: COMCARGRU EIGHT, COMCARGRU FOUR		1
	ONLY: COMCARGRU TWO, COMCARGRU SIX	1	
28A2	Carrier Group PAC		
	ONLY: COMCARGRU THREE		1
	ONLY: COMCARGRU ONE	1	
28B1	Cruiser-Destroyer Group LANT		1
28C1	Surface Group LANT		
	ONLY: COMNAVSURFGRU SIX		1
	ONLY: COMSURFWARDEVGRU LITTLE CREEK VA	1	
28C2	Surface Group and Force Representative PAC		
	ONLY: COMNAVSURFGRU MIDPAC	1	
28D2	Destroyer Squadron PAC		
	ONLY: COMDESRON ONE	1	
28F2	Logistics Group Western PAC		
	ONLY: COMLOG WESTPAC	1	
28L1	Amphibious Squadron LANT		
	ONLY: COMPHIBRON EIGHT	1	
28L2	Amphibious Squadron PAC		
	LESS: COMPHIBRON NINE, COMPHIBRON SEVEN		1
29A1	Guided Missile Cruiser LANT (CG)(CGN)		
	LESS: USS ANZIO (CG 68),		1
	USS CAPE ST GEORGE (CG 71),		
	USS HUE CITY (CG 66),		
	USS VELLA GULF (CG 72),		
	USS VICKSBURG (CG 69)		
	ONLY: USS CAPE ST GEORGE (CG 71),	1	
	USS HUE CITY (CG 66), USS ANZIO (CG 68),		
	USS VICKSBURG (CG 69),		
	USS VELLA GULF (CG 72)		
29A2	Guided Missile Cruiser PAC (CG)(CGN)		
	LESS: USS MOBILE BAY (CG 53)	1	
	ONLY: USS MOBILE BAY (CG 53)		1
29B1	Aircraft Carrier LANT (CV)(CVN)		

U.S. Navy Distribution (continued)

29B2	LESS: PCU JOHN C STENNIS (CVN 74)	1	
	Aircraft Carrier PAC (CV) (CVN)		
	LESS: USS ABRAHAM LINCOLN (CVN 72),		1
	USS KITTY HAWK (CV 63)		
	ONLY: USS KITTY HAWK (CV 63),	1	
	USS ABRAHAM LINCOLN (CVN 72)		
29E1	Destroyer LANT (DD), 963 Class		1
29E2	Destroyer PAC (DD), 963 Class		
	LESS: USS PAUL F FOSTER (DD 964)		1
29F1	Guided Missile Destroyer LANT (DDG)		
	LESS: USS SCOTT (DDG 995)	1	
	ONLY: USS SCOTT (DDG 995)		1
29F2	Guided Missile Destroyer PAC (DDG)		
	LESS: PCO BENFOLD (DDG 65),	1	
	PCO STETHEM (DDG 63),		
	USS CALLAGHAN (DDG 994),		
	USS CHANDLER (DDG 996)		
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	USS CHANDLER (DDG 996)		
29AA	Guided Missile Frigate (FFG) 7 Class		1
31A1	Amphibious Command Ship LANT (LCC)	1	
31A2	Amphibious Command Ship PAC (LCC)	2	
31G	Amphibious Transport Dock (LPD)		1
31H	Amphibious Assault Ship (LHA), (LPH)	1	
31I1	Dock Landing Ship (LSD) LANT		
	LESS: PCU CARTER HALL (LSD 50),	1	
	USS PENSACOLA (LSD 38),		
	USS PORTLAND (LSD 37)		
	ONLY: USS PORTLAND (LSD 37),		1
	USS PENSACOLA (LSD 38)		
31I2	Dock Landing Ship (LSD) PAC		
	LESS: USS RUSHMORE (LSD 47)	1	
	ONLY: USS RUSHMORE (LSD 47)		1
31M1	Tank Landing Ship LANT (LST)		1
31M2	Tank Landing Ship PAC (LST)	1	
31N	Multi-Purpose Amphibious Assault Ship (LHD)	1	
32KK	Miscellaneous Command Ship (AGF)		
	ONLY: USS LA SALLE (AGF 3)		1
39E1	Amphibious Construction Battalion LANT	1	
42B2	Functional Wing Commander PAC		
	ONLY: COMPATWINGSPAC BARBERS POINT HI	1	1
42E1	Type Wing Commanders LANT		
	ONLY: COMSTRKFIGHTWINGLANT CECIL FIELD FL	1	
42E2	Type Wing Commanders PAC		
	ONLY: COMSTRKFIGHTWINGPAC LEMOORE CA	1	
42P1	Patrol Wing and Squadron LANT (VP) (VPU)		
	ONLY: PATRON THREE ZERO,	1	

U.S. Navy Distribution (continued)

	PATRON SPEC PROJ UNIT ONE BRUNSWICK ME		
	ONLY: PATRON TWO FOUR	1	1
42P3	Patrol Squadron Reserve (VP)		
	ONLY: PATRON NINE FOUR	1	
42S2	Air Test and Evaluation Squadron (VX) and Antarctic Development Squadron (VXE) and Detachments PAC		
	ONLY: AIRTEVRON NINE	2	
42T1	Tactical Air Control Group and Squadron LANT (VTC)		
	ONLY: COMTACGRU TWO	1	
	ONLY: TACRON TWO ONE	2	
	ONLY: TACRON TWO TWO	3	
42T2	Tactical Air Control Group and Squadron PAC (VTC)		
	LESS: COMTACGRU ONE	3	
	ONLY: COMTACGRU ONE	1	
42U1	Helicopter Combat Support Squadron LANT (HC)	1	
42CC2	Helicopter Anti-submarine Squadron, Light PAC (HSL)		
	ONLY: HSL FOUR ONE NORTH ISLAND CA	1	
42DD1	Carrier Airborne Early Warning Squadron LANT (VAW)	1	
42FF1	Strike-Fighter Weapons School LANT	1	
42HH	Helicopter Combat Support Special Squadron (HCS)	1	
42TT2	Fleet Maritime Patrol Mobile Operations Control Center PAC		
	ONLY: FMP MOCC MPAC	1	1
45A2	Marine Expeditionary Force		
	ONLY: CG THIRD MEF		2
	ONLY: SECOND MEF DET ONE		3
	ONLY: CG SECOND MEF	1	
	ONLY: CG FIRST MEF	3	
45B	Marine Division		
	ONLY: CG FOURTH MARDIV, CG SECOND MARDIV		5
	ONLY: CG THIRD MARDIV		3
	ONLY: CG FIRST MARDIV	2	
45D	Artillery Regiment		
	ONLY: ELEVENTH MAR	1	
	ONLY: TENTH MAR	3	
	ONLY: TWELFTH MAR	3	3
45E	Infantry Regiment		
	LESS: TWO FIVE MAR, TWO SEVEN MAR		2
	ONLY: TWO FIVE MAR	2	2
45G	Artillery Battalion		
	LESS: FIFTHBN ELEVENTH MAR, FIRSTBN ELEVENTH MAR, SECONDBN ELEVENTH MAR,		1

U.S. Navy Distribution (continued)

	THIRDBN ELEVENTH MAR		
45J	Headquarters Battalion		
	ONLY: HQBN SECOND MARDIV		4
45L1	Infantry and Reconnaissance Battalion		
	LESS: BNLANDTEAM ONE/FOUR, FIRSTBN FIFTH MAR,		1
	FIRSTBN NINTH MAR, FIRSTBN SEVENTH MAR,		
	SECONDBN FIFTH MAR, SECONDBN NINTH MAR,		
	THIRDBN FIFTH MAR, THIRDBN NINTH MAR,		
	THIRDBN SEVENTH MAR		
45O	Light Antiaircraft Missile Battalion and		
	Headquarters and Service Battery		
	ONLY: THIRD LAAMBN, FIRST LAAMBN		1
	ONLY: FOURTH LAAMBN	1	1
45Q	Division and Service Support Group and Battalion		
	ONLY: CG SECOND FSSG, CG THIRD FSSG		1
	ONLY: CG FIRST FSSG	5	
45R	Communication Battalion		
	ONLY: EIGHTH COMBN		2
	ONLY: SEVENTH COMBN	1	
45T	Air Naval Gunfire Liaison Company, FMF		
	ONLY: SECOND ANGLICO		4
	ONLY: FIRST ANGLICO	1	
45V	Expeditionary Brigade and Unit		
	ONLY: THREE ONE MEU	1	2
45Y	Tank Battalion		
	LESS: FIRST TKBN		1
45HH	Landing Support Battalion		
	ONLY: SECOND LDGSPTBN		1
46B	Aircraft Wing		
	LESS: CG SECOND MAW		2
	ONLY: CG SECOND MAW	1	
46C1	Marine Aircraft Group and Detachments		
	LESS: MAG FOUR NINE, MAG FOUR ONE		2
46C3	Air Control Group		1
46D2	All Weather Attack Squadron (VMA) (VMA) (AW)		
	LESS: VMA THREE THREE ONE		1
46D3	Fighter-Attack Squadron (VMFA)		1
46F	Marine Wing Communications Squadron and		
	Detachment		
	ONLY: MWCS EIGHTEEN		1
	ONLY: MWCS THREE EIGHT	1	
	ONLY: MWCS TWO EIGHT	3	1
46H	Transport Squadron (VMGR)		
	LESS: VMGR TWO THREE FOUR		1
46J	Air Control Squadron Marine		
	ONLY: MACS ONE, MACS TWO, MACS SEVEN		1
	ONLY: MACS FOUR	1	1

U.S. Navy Distribution (continued)

46K	Air Support Squadron Marine LESS: MASS ONE	1
46M2	Aviation Logistics Squadron Marine (MALS) ONLY: MALS TWO NINE	1
46P2	Helicopter Squadron (HMM) (HMH) (HMLA) ONLY: HMM ONE SIX TWO	1
46Q	Wing Support Group LESS: MWSG TWO SEVEN	1
50A	Unified Commands ONLY: USCINCSO QUARRY HEIGHTS PM, USACOM NORFOLK VA, USCINCSpace PETERSON AFB CO	1
50C	Subordinate Unified Commands ONLY: USCINCPAC HONOLULU HI ONLY: COMICEDEFOR KEFLAVIK IC ONLY: COMUSJAPAN YOKOTA AB JA	1 1
50D	Components of Unified/Specified Commands ONLY: COMUSNAVCENT BAHRAIN	1
51B3	Southern Europe Area ONLY: COMSTRIKFORSOUTH	1
T-100Y	(T-AH) Hospital Ship ONLY: USNS COMFORT (T-AH 20)	1

SNDL PART II

Paper/Micro

A3	Chief of Naval Operations ONLY: (N3/N5), (N88), (N85), (N41)	1	
A5	Chief of Naval Personnel		1
B2	Defense Agencies ONLY: JCS CFAD WASHINGTON DC		1
B2A	Special Agencies Staffs Boards and Committees ONLY: NSA, DEFENSE INTELLIGENCE SCHOOL WASH DC, JOINT STAFF J-7	1	
B2I	Joint Doctrine Center	1	1
B3	College and University ONLY: COMDT AFSC NORFOLK VA	2	
B5	Coast Guard ONLY: COMDT COGARD WASHINGTON DC, COGARD TISCOM ALEXANDRIA VA	1	
C1A	Naval Personnel at Army Activities ONLY: CDRUSAJFKSPWAR CENSCH FT BRAGG NC, COMGENSTAFCOL FT LEAVENWORTH, CDRFORSCOM FT MCPHERSON GA	1	
C2C	Navy Liaison Officers at Air Force Activities LESS: REGHOSP ELMENDORF AFB AK	1	

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C4P	Communication-Electronics School, Marine Corps	1	
C5B	Military Assistance Advisory Groups, Navy Section		
	ONLY: CHNAVSECMAGG PORTUGAL LISBON PO		1
	ONLY: CHJUSMAGTHAI BANGKOK TH	1	
	ONLY: CHNAVSECMTM RIYADH SA	3	
C5G	Office of Defense Cooperation		
	ONLY: ODC OSLO NO	1	
C21	Assistant for Administration to the Under Secretary of the Navy Detachment	1	
C25A	Support Activity Detachments		
	ONLY: DIRECTOR PROJECT HANDCLASP		2
C46F	Computer and Telecommunications Area Master Station Detachments		
	ONLY: NCTAMS MED DET ROTA SP	1	
C58I	Technical Training Center Detachments		
	ONLY: NAVTECHTRACEN DET KEESLER AFB MS		1
C84A	Surface Warfare Center Division Detachments		
	ONLY: NAVSWC DET SILVER SPRING MD	1	
E3A	Laboratory Research		
	ONLY: NRL WASHINGTON DC	3	
FA7	Station		
	ONLY: NAVSTA PANAMA CANAL RODMAN PM	1	
FB7	Air Station		
	ONLY: NAS ALAMEDA, NAS LEMOORE CA, NAS MIRAMAR	1	
	ONLY: NAS AGANA GQ		1
FB34	Fleet Activities		
	ONLY: COMFLEACT CHINHAE KS		1
	ONLY: COMFLEACT OKINAWA JA	1	
FC3	Activities, EUR		
	ONLY: COMNAVACT LONDON UK	1	
FC14	Air Station	1	
FE1	Security Group, HQ	1	
FE2	Security Station	1	
FE4	Security Group Activity		
	ONLY: NAVSECGRUACT MISAWA JA		1
	ONLY: NAVSECGRUACT EDZELL UK	1	
	ONLY: NAVSECGRUACT NORTHWEST VA	4	3
FF18	Tactical Support Activity	5	
FF42	Postgraduate School		2
FF44	War College	5	
FF63	Strike Warfare Center	1	
FG1	Computer and Telecommunications Command		
	ONLY: COMNAVCOMTELCOM WASHINGTON DC	1	1
FG4	Computer and Telecommunications Activity		

U.S. Navy Distribution (continued)

FG6	ONLY: NAVCOMTELSTA SAN DIEGO CA Computer and Telecommunications Area Master Station	1	
FKA1A	ONLY: NCTAMS WESTPAC GQ, NCTAMS EASTPAC Air Systems Command	1	
FKA1G	Sea Systems Command	1	
FKP1H	Ordnance Center Divisions and Stations	2	
	ONLY: WPNSTA CONCORD CA	1	1
	ONLY: NWADIV CORONA CA	2	
FKP4A	Coastal Systems Station Dahlgren Division		1
FKP4E	Surface Warfare Center Divisions		
	LESS: NAVSURFWARCENDIV DAHLGREN VA, NAVSURFWARCENDIV PORT HUENEME CA	1	
	ONLY: NAVSURFWARCENDIV DAHLGREN VA	3	
FKP14	Fleet Combat Direction Systems Support Activity	1	
FKP20	AEGIS Training Center		
	ONLY: AEGIS MAYPORT FL		1
	ONLY: AEGISTRACEN DAHLGREN	3	
FKQ10	Technical Representative Office	2	
FKQ6C	Command Control and Ocean Surveillance Center RDTE Division		1
FKR1A	Air Station	1	
FKR6B	Air Warfare Center Weapons Division		
	ONLY: NAVAIRWARCENWPNDIV CHINA LAKE CA	2	
FKR6C	Air Weapons Station		
	ONLY: NAVAIRWPNSTA PT MUGU CA	2	
FP1	Naval Doctrine Command	1	
FR9	Reserve Readiness Command Region		
	ONLY: NAVRESREDCOMREG SIXTEEN (MINNEAPOLIS), NAVRESREDCOMREG SIX (WASH DC), NAVRESREDCOM REG FOUR FT DIX NJ		1
FR10	Reserve Centers		
	LESS: NAVMARCORESCEN ALAMEDA, NAVMARCORESCEN ALBUQUERQUE, NAVMARCORESCEN ALLENTOWN PA, NAVMARCORESCEN BATON ROUGE, NAVMARCORESCEN BOISE ID, NAVMARCORESCEN CHATTANOOGA TN, NAVMARCORESCEN CINCINNATI, NAVMARCORESCEN DAYTON, NAVMARCORESCEN EBENSBURG PA, NAVMARCORESCEN EUGENE, NAVMARCORESCEN EVANSVILLE, NAVMARCORESCEN FT SCHUYLER BRONX NY, NAVMARCORESCEN GARY, NAVMARCORESCEN GREEN BAY, NAVMARCORESCEN GREENVILLE,		1

U.S. Navy Distribution (continued)

NAVMARCORESCEN JACKSONVILLE,
NAVMARCORESCEN KNOXVILLE,
NAVMARCORESCEN LAS VEGAS,
NAVMARCORESCEN LINCOLN,
NAVMARCORESCEN LITTLE ROCK,
NAVMARCORESCEN MADISON,
NAVMARCORESCEN MILWAUKEE,
NAVMARCORESCEN NEW HAVEN CT,
NAVMARCORESCEN PEORIA,
NAVMARCORESCEN PLAINVILLE,
NAVMARCORESCEN RALEIGH,
NAVMARCORESCEN READING,
NAVMARCORESCEN SAN ANTONIO,
NAVMARCORESCEN SAN JOSE,
NAVMARCORESCEN SHREVEPORT LA,
NAVMARCORESCEN SOUTH BEND,
NAVMARCORESCEN TOPEKA KS,
NAVMARCORESCEN TUCSON,
NAVMARCORESCEN TULSA,
NAVMARCORESCEN WASHINGTON,
NAVMARCORESCEN WILMINGTON DE,
NAVMARCORESCEN WORCESTER,
NAVRESCEN ADELPHI, NAVRESCEN ANCHORAGE AK,
NAVRESCEN AVOCA, NAVRESCEN CEDAR RAPIDS,
NAVRESCEN CENTRAL POINT,
NAVRESCEN CHEYENNE, NAVRESCEN COLUMBIA SC,
NAVRESCEN CORPUS CHRISTI TX,
NAVRESCEN DUBUQUE IA, NAVRESCEN EVERETT,
NAVRESCEN FOREST PARK,
NAVRESCEN GLENS FALLS,
NAVRESCEN GREAT FALLS MT,
NAVRESCEN HUNTSVILLE AL,
NAVRESCEN JACKSON, NAVRESCEN NASHVILLE,
NAVRESCEN OSHKOSH, NAVRESCEN POMONA,
NAVRESCEN PORT HUENEME CA,
NAVRESCEN RICHLAND WA,
NAVRESCEN ROOSEVELT ROADS PR,
NAVRESCEN SAGINAW, NAVRESCEN SANTA ANA CA,
NAVRESCEN SAVANNAH, NAVRESCEN SHEBOYGAN,
NAVRESCEN SIOUX FALLS,
NAVRESCEN SOUTH WEYMOUTH MA,
NAVRESCEN STEVENS POINT WI,
NAVRESCEN TAMPA, NAVRESCEN TYLER,
NAVRESCEN WATERTOWN,
NAVRESCEN WHITE RIVER JUNCTION,
NAVRESCEN WICHITA,
NAVRESREDCEN FORT DIX NJ

U.S. Navy Distribution (continued)

FR11	ONLY: NAVRESCEN SANTA ANA CA Reserve Facility	1	1
FR15	LESS: NAVRESFAC LEWES DE Support Activity		1
FR23	Reserve Readiness Centers LESS: NAVMARCORESREDCEN ALBANY, NAVMARCORESREDCEN DENVER, NAVMARCORESREDCEN INDIANAPOLIS IN, NAVMARCORESREDCEN LONG BEACH CA, NAVMARCORESREDCEN MIAMI FL, NAVMARCORESREDCEN NEW ORLEANS LA, NAVMARCORESREDCEN PHOENIX AZ, NAVMARCORESREDCEN SACRAMENTO CA, NAVMARCORESREDCEN SAN DIEGO CA, NAVMARCORESREDCEN SPOKANE WA, NAVRESREDCEN BALTIMORE MD, NAVRESREDCEN CHARLESTON, NAVRESREDCEN KANSAS CITY MO, NAVRESREDCEN KEARNEY NJ, NAVRESREDCEN MEMPHIS TN, NAVRESREDCEN PHILADELPHIA PA, NAVRESREDCEN ST LOUIS MO		1
FT6	ONLY: NAVRESREDCEN KEARNEY NJ Air Station	1	
	ONLY: NAS PENSACOLA FL		1
FT22	ONLY: NAS CORPUS CHRISTI TX Fleet Combat Training Center		2
	ONLY: FCTCPAC SAN DIEGO	1	
FT24	ONLY: FCTCLANT VIRGINIA BEACH VA Fleet Training Center	30	
	LESS: FLETRACEN MAYPORT	1	
FT28	Education and Training Center	1	
FT35	Amphibious School		
	ONLY: NAVPHIBSCOL LITTLE CREEK VA	15	
FT39	ONLY: NAVPHIBSCOL CORONADO SAN DIEGO CA Technical Training Center	65	
	ONLY: NAVTECHTRACEN PENSACOLA FL	1	
FT43	Surface Warfare Officers School Command	10	
FT46	Fleet Anti-Submarine Warfare Training Center	1	
FT51	Fleet and Mine Warfare Training Center	1	
FT65	Fleet Intelligence Training Center	1	
FT72	Science, Dept of Naval		
	ONLY: DPTNAVSCI TXMARICAD GALVESTON TX, DPTNAVSCI USMERMACAD KINGS POINT	1	
FT78	Education & Training Program Management Support Activity	1	
FT97	Intelligence Training Center, Navy and Marine	1	

U.S. Navy Distribution (continued)

	Corps		
V5	Air Station, Marine Corps		
	ONLY: MCAS EL TORO (SANTA ANA CA)		1
V6	Aircraft Wings Marine Corps		1
V11	Institute, Marine Corps	1	
V12	Combat Development Command, Marine Corps	6	
V15B	Training Center, Marine Corps Reserve		
	ONLY: MARCORESCEN WEST TRENTON NJ		1
V16	Base, Marine Corps		
	ONLY: CG MCB CAMP LEJEUNE,		1
	CG MCB CAMP BUTLER JA		
	ONLY: CG MCB CAMP PENDLETON	4	
V22	Aircraft Group, Marine Corps		
	ONLY: MAG FOUR ONE DET B, MACG FOUR EIGHT,		1
	MAG FOUR ONE DET A		
	ONLY: MAG FOUR NINE DET C, MAG FOUR NINE	1	
V28	Systems Command, Marine Corps	3	
MISC	Miscellaneous Addresses		
	ONLY: APL/JHU	2	

March 1995

PUBLICATION NOTICE

ROUTING

1. NWP 3-09.11M/FMFM 1-7, Supporting Arms in Amphibious Operations, is available in the Naval Warfare Publications Library. It is effective upon receipt.
2. Changes throughout this book reflect improved procedural and tactical guidelines as well as updating and clarifying terminology and phraseology.

Naval Warfare Publications Custodian

Naval warfare publications must be made readily available to all users and other interested personnel within the U.S. Navy.

Note to Naval Warfare Publications Custodian

This notice should be duplicated for routing to cognizant personnel in accordance with NWP 1-01.

Supporting Arms in Amphibious Operations

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RECORD OF CHANGES

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INTRODUCTION

These publications, or superseding publications, represent the library that is required for planning supporting arms in amphibious operations. This listing does not represent all the publications that are desirable for the planner to have available and is not to be construed as limiting the supporting arms in amphibious operations library.

In addition to the publications listed, the naval gunfire support (NGFS) section should contain studies and reports published from time to time, relating to performance of ammunition, effectiveness and accuracy of NGFS, and previous amphibious operations.

TACTICAL PUBLICATIONS

ATP 1, Vol. I	Allied Maritime Tactical Instructions and Procedures
ATP 4	Allied Naval Gunfire Support
ATP 27	Offensive Air Support Operations
ATP 28	Allied Antisubmarine Warfare Manual
ATP 37	Supporting Arms in Amphibious Operations
NWP 11	Naval Operational Planning
NWP 4	Basic Operational Communications Doctrine (U)
NWP 18-1	Chemical Weapons Employment (U)
NWP 22-3	Ship-to-Shore Movement
NWP 22-4	Naval Special Warfare in Amphibious Operations (U)
NWP 28	Nuclear Warfare Operations (U)

NWP 32

Antiair Warfare (U)

NWP 42

Shipboard Helicopter Operating Procedures

MARINE CORPS PUBLICATIONS

FMFM 2-7	Fire Support in Marine Air-Ground Task Force Operations
FMFM 2-7-1	Fire Support Coordination by the Marine Air-Ground Task Force Command Element
FMFM 3	Command and Control
FMFM 3-1	Command and Staff Action
FMFM 3-22-1	UAV Company Operations
FMFM 3-30	Communications
FMFM 5-1	Organization and Functions of Marine Aviation
FMFM 5-35	Assault Support Helicopter (ASH) Tactical Manual
FMFM 5-40	Offensive Air Support
FMFM 5-41	Close Air Support and Close-In Fire Support
FMFM 5-42	Deep Air Support
FMFM 5-5A	Antiair Warfare Supplement (U)
FMFM 5-50	Antiair Warfare
FMFM 5-52	Employment of the Low Altitude Air Defense Battalion
FMFM 5-60	Control of Aircraft and Missiles
FMFM 6-9	Marine Artillery Support

FMFM 6-18	Techniques and Procedures for Fire Support Coordination	OP 2238	Identification of Ammunition
FMFM 6-21	Tactical Fundamentals of Helicopterborne Operations	OP 4080	Weapons/Ammunition Characteristics
U.S. ARMY PUBLICATIONS		OP 4092	5-Inch/38 Gun Effectiveness
TM-9-1901-1	Ammunition for Aircraft Guns	OP 4136	Lethal Areas
TM-9-1300-203	Artillery, Ammunitions, Guns, Howitzers, Mortars, Recoilless Rifles	OP 4138	Safe Distance
		OP 4215	Fragmentation Data
FM-6-20	Fire Support in Airland Battle	OP 4224	5-Inch/54 Gun Effectiveness
FM-6-40	Field Artillery Cannon Gunnery	OP 4237	Ammunition Reliability
		OP 4388	Indirect Fire Accuracy (Vols. I and II)
FM-21-30	Conventional Signs, Military Symbols and Abbreviations	OP 4585	8-Inch/55 Gun Effectiveness

JOINT SERVICE PUBLICATIONS

Joint Pub 3-02, Joint Doctrine for Amphibious
Operations

Joint Munitions Effectiveness Manual (series)

NAVAL SEA SYSTEMS COMMAND PUBLICATIONS (LESS RANGE TABLES)

OP 1004	Index of Ballistic Information for Projectiles, Rockets, and Bombs
OP 1188	Abridged Range Tables for U.S. Naval Guns
OP 1664	U.S. Explosive Ordnance (2 volumes)
OP 1714	Projectile and Fuze Selection for Attack of Ship and Shore Targets
SW010-AA-MEM-010	Ammunition Reliability
SW030-AA-MMO-010	Navy Gun Ammunition

Armament of Naval Vessels contains a statement of
installed and ultimate armament of major ordnance for
all U.S. Navy vessels regardless of their fleet status.

RANGE TABLES

1. 3-in./50
OP 1795
2. 5-in./38
OP 551
OP 1285
OP 1487
OP 2120
3. 5-in./54
SW323-AF-ORD-010
OP 1184
4. 8-in./55
OP 1334
OP 992

NAVAL ORDNANCE AND GUNNERY

1. NAVPERS 10797, Vol. I
2. NAVPERS 10798, Vol. II
3. NAVPERS 10799, Vol. III

List of Abbreviations/Acronyms

A

AAA. Antiaircraft artillery.

AAW. Antiair warfare.

ACA. Airspace coordination area.

ACE. Aviation combat element.

AEW. Airborne early warning.

AFS. FUS. Ammunition fire unit-fire unit status.

AFU. AMS. Ammunition fire unit-ammunition status.

AFU. MFR. Ammunition fire-unit mission fired report.

AMCM. Airborne mine countermeasures.

ANGLICO. Air/naval gunfire liaison company.

AOA. Amphibious objective area.

ARTYAS. Artillery air spot.

ASC(A). Assault support coordinator (airborne).

ASC. Air support coordinator.

ASCS. Air support control section.

ASUWC. Antisurface warfare commander.

ASWC. Antisubmarine warfare commander.

ATACS. Amphibious tactical air control system.

ATC. Air traffic control.

ATF. Amphibious task force.

ATG. Amphibious task group.

ATO. Air tasking order.

B

BARCAP. Barrier combat air patrol.

BLT. Battalion landing team.

C

CAPs. Combat air patrols.

CAS. Close air support.

CATF. Commander amphibious task force.

CFL. Coordinated fire line.

CIC. Combat information center.

CLF. Commander landing force.

COF. Conduct of fire.

CP. Command post.

CVT. Controlled variable time.

D

DASC. Direct air support center.

DAS. Deep air support.

DS. Direct support.

E

ECM. Electronic countermeasures.

EEIs. Essential elements of information.

ESR. Equivalent service rounds.

EW. Electronic warfare.

F

FAC(A). Forward air controller (airborne).

FAC. Forward air controller.

FACP. Forward air control party.

FAD. Fighter air director.

FCT. Firepower control team

FD. Fire direction.

FFC. Force fires coordinator.

FFCC. Force fires coordination center.

FLOT. Forward line of own troops.

FM. BEALOC. Fire mission-beacon location.

FMF. Fleet Marine Force.

FOB. Forward operating base.

FSA. Fire support areas.

FSCC. Fire support coordination center.

FSCL. Fire support coordination line.

FSS. Fire support stations.

G

GCE. Ground combat element.

GFCS. Gunfire control system.

GS/R. General support/reinforcing.

H

HA. Helicopter administrative.

HCMD. Helicopter command.

HCS. Helicopter coordination section.

HD. Helicopter direction.

HE. High explosive.

HR. Helicopter request.

I

IFF. Identification friend or foe.

J

JIC. Joint intelligence center.

JOPS. Joint operation planning system.

JTAR. Joint tactical air strike request.

L

LAAD Bn. Low altitude air defense battalion.

LAAM Bn. Light antiaircraft missile battalion.

LF. Landing force.

LF TIO. Landing force target information officer.

LVT. Landing vehicle transport.

M

MACCS. Marine air command and control system.

MACS. Marine air control squadron.

MAGTF. Marine air-ground task forces.

Marine TACC. Tactical air command center.

MASS. Marine air support squadron.

MATCD. Marine air traffic control detachment.

MEF. Marine expeditionary force.

MEU. Marine expeditionary unit.

MPI. Mean point of impact.

MTACS. Marine tactical air command squadron.

MWCS. Marine wing communications squadron.

N

NAVREF. Navigation reference.

NAVY TACC. Tactical air control center.

NFA. No-fire area.

NFO. Naval flight officers.

NGAS. Naval gunfire air spot.

NGF. Naval gunfire.

NGFO. Naval gunfire officer.

NGFS. Naval gunfire support.

NGLO. Naval gunfire liaison officer.

NSFS. Naval surface fire support.

NTDS. Navy tactical data system.

O

OIRs. Other intelligence requirements.

OAAW. Offensive antiair warfare.

OPORD. Operational order.

OTC. Officer in tactical command.

P

PD. Point detonating.

PSS. Plans support section.

R

RAPCAP. Radar picket combat air patrol.

RESCAP. Rescue combat air patrol.

RFA. Restrictive fire area.

RFL. Restrictive fire line.

S

SAAWC. Sector antiair warfare coordinator.

SAC. Supporting arms coordinator.

SACC. Supporting arms coordination center.

SAM. Surface-to-air missile.

SAR. Search and rescue.

SEAD. Suppression of enemy air defense.

SEAL. Sea air land.

SFCP. Shore fire control party.

SIF. Selective identification feature.

SOF. SAAWC operations facility.

SOP. Standing operating procedure.

T

TAC(A). Tactical air controller (airborne).

TAC. Tactical air controller.

TAC Net. Tactical air command net.

TACP. Tactical air control party.

TACREP. Tactical report.

TACRON. Tactical air control squadron.

TACT. Tactical air traffic control.

TAD. Tactical air direction.

TADC. Tactical air direction center.

TAOC. Tactical air operations center.

TAO. Tactical air officer.

TAOR. Tactical area of responsibility.

TARBUL. Target bulletin.

TARCAP. Target combat air patrol.

TAR. Tactical air request.

TATC. Tactical air traffic control controller.

TIO. Target information officer.

U

UAV. Unmanned aerial vehicles.

V

VT. Variable time.

W

WP. White phosphorous.

PREFACE

NWP 3-09.11M/FMFM 1-7, Supporting Arms in Amphibious Operations, is a guide for naval commanders for coordinating (1) the planning and delivery of supporting fire; and (2) the requests of the landing force for supporting fire during the planning and operational phases of amphibious operations.

Part I contains basic instructions and considerations necessary for planning and executing naval gunfire support.

Part II outlines supporting operations performed by aircraft during amphibious operations and the organization and procedures by which air support is integrated into the coordinated effort. Pertinent command relationships are also included.

Part III presents the organization and functioning of the supporting arms coordination center (SACC); the processing of targets lists and naval gunfire, air, and artillery support requests; and the coordination of requests into the amphibious operation. Certain landing force instructions are included to show the relationship to naval functions.

Part IV contains checklists, forms, instructions and annexes to supplement other parts of this publication.

NWP 3-09.11M/FMFM 1-7 supplements Joint Pub. 3-02, Doctrine for Amphibious Operations. It contains techniques and methods that have been developed as a result of previous operations in amphibious warfare. This publication is not intended to prevent any commander from initiating and issuing special instructions to his command or from conceiving and developing new operational procedures. Its purpose is to obtain basic uniformity while permitting the flexibility and initiative required by the tactical situation.

Throughout this publication, references to other publications imply the effective edition.

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PART I

Naval Gunfire Support

Chapter 1 — Organization

Chapter 2 — Operations

Chapter 3 — Planning

CHAPTER 1

Organization

1.1 SCOPE

The basic task of NGFS units in an amphibious operation is to support the operation by destroying, neutralizing or suppressing:

1. Shore installations that oppose the approach of ships and aircraft
2. Defenses that may oppose the LF
3. Defenses that may oppose the postlanding advance of the LF.

The general organization of the ATF, including the organization for gunfire support, is described in Joint Pub 3-02, Joint Doctrine for Amphibious Operations. Figure 1-1 illustrates the naval organization for gunfire support.

1.2 AMPHIBIOUS TASK FORCE

The highest naval echelon directly concerned with the NGFS of an amphibious operation is the ATF level. The ATF, in addition to the LF, includes the fire support group that contains the various types of fire support ships necessary to support the landing force.

The CATF normally will control NGF during debarkation and landing of assault waves, and may thereafter delegate this control authority to his fire support group commander. If he chooses to continue control of NGF, the fire support group commander assumes a standby role.

When the number of ships permits, each assault battalion will be assigned a direct support ship. General support ships are assigned to support each assault regiment and division. When insufficient ships are available to provide this scale of support, CATF will assign those ships that are available as advised by the CLF. Reserve support ships not assigned to specific LF units are maintained in an on-call status directly under the gunfire support group commander or his

subordinates. If the CLF requires additional direct or general support ships, he may originate a request to the commander controlling NGFS. The latter will then direct the assignment of fire support ships for this purpose as practicable. LF units may reassign the supporting fire of direct and general support ships to subordinate LF units but must so advise the CATF.

1.2.1 Advance Force. An advance force includes one or more fire support or bombardment groups for prelanding operations. The ships may be formed into units to accomplish particular parts of the general mission, if the number of ships involved and the nature of the mission make a subdivision of the fire support group necessary. If subdivided, each unit will be under a designated unit commander. The advance force commander will be provided with personnel and facilities for exercising detailed supervision, assessing damage, modifying previous plans as necessary, ensuring the most economical and effective expenditure of ammunition, and ensuring that the bombardment as executed fully supports the mission of the landing force. To aid in the latter, representatives of the CLF will be embarked with the advance force in a liaison and advisory capacity. These personnel transfer to the ATF flagship upon its arrival in the transport area.

1.2.2 Attack Group. The attack group is a subordinate task organization of the naval forces of an ATF. It is composed of assault shipping and supporting naval units designated to transport, protect, land, and initially support a landing group (and thereafter as required). The attack group contains the fire support ships necessary to provide gunfire support for the associated landing group. The staff includes a weapons officer who provides special staff and operational duties in connection with this support.

1.2.3 Fire Support Group. The fire support group is a naval task organization of the ATF and contains all of the fire support ships assigned to the force for support of the landing. Its organization may vary with each operation depending upon the number of ships available and/or their supporting fires. If a large number

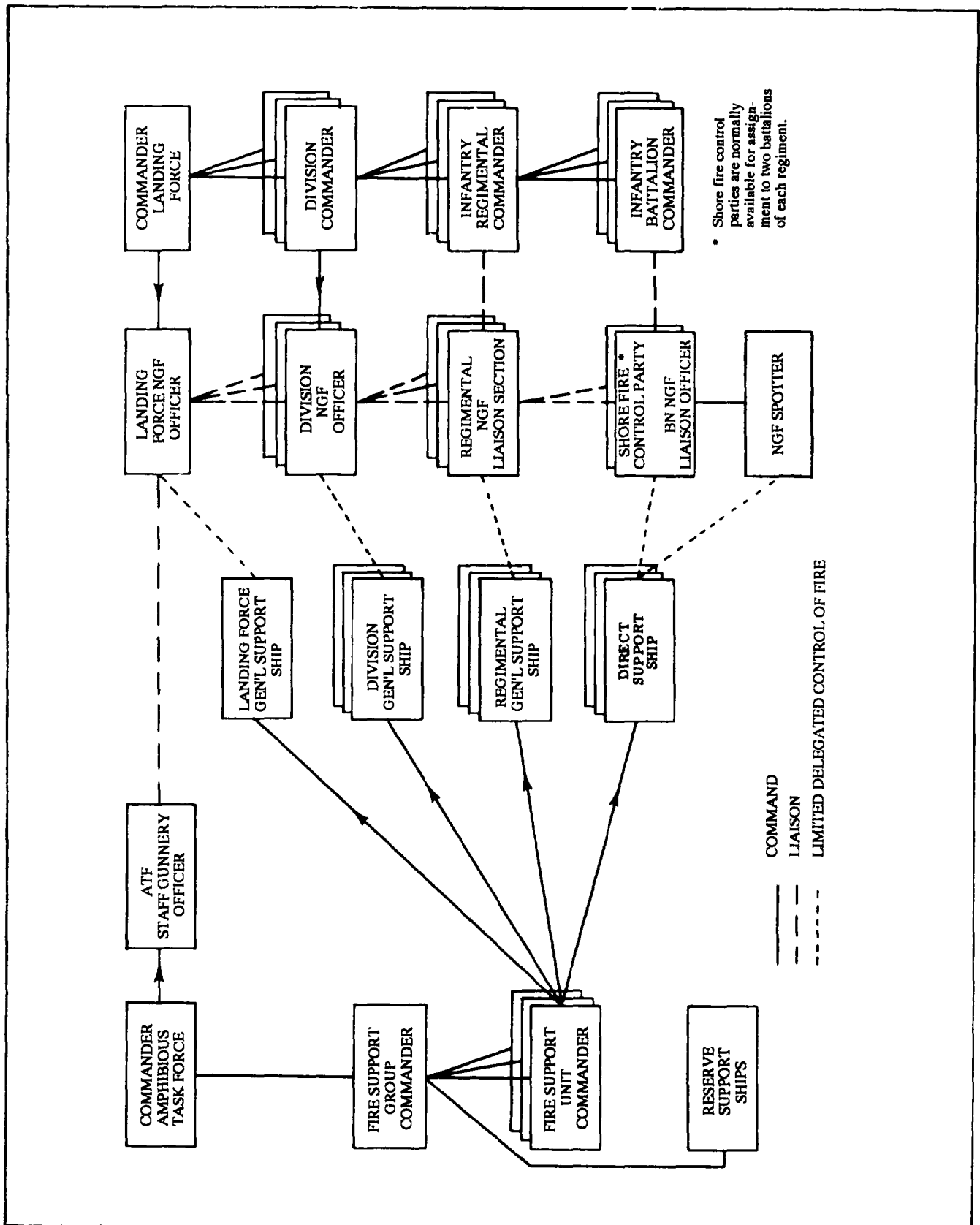


Figure 1-1. Amphibious Task Force/Landing Force Naval Gunfire Organization

of fire support ships are available, the fire support group may be subdivided into echelons, such as fire support units. When subdivided into units, the fire support group commander coordinates and directs the units of his group through the fire support unit commanders. The fire support group commander does not deal directly with landing force agencies unless directed to do so by the CATF. The fire support group or unit commander is responsible for:

1. Supervision of the NGFS provided by his ships
2. Prompt execution of counterfire in his zone of fire, keeping the SACC/FFCC/FSCC informed of counterfire missions in progress
3. Coordination of ships in his unit in defense measures, such as defense against enemy air attack
4. Logistics, such as arrangements for fueling ships and replenishing ammunition
5. Coordination of movement of gunfire support ships in his area.

1.3 LANDING FORCE ORGANIZATION

1.3.1 General. Joint Pub 1-02, Department of Defense Dictionary of Military and Associated Terms, defines a landing force as: "A task organization of troop units, aviation and ground, assigned to an amphibious assault. It is the highest troop echelon in the amphibious

operation." Fleet Marine force elements are typically employed as MAGTFs for the purposes of performing amphibious assault missions in the specific operation that establishes the requirements for their participation. Each MAGTF, regardless of its size (e.g., MEU, or MEF) has a separate command element. The CLF is provided with an integrated staff and communication facilities to enable him to exercise command of air-ground operations. Figure 1-2 is a typical organization of the MAGTF. The landing force organization for control and employment of naval gunfire provides special staff or liaison representatives at the MAGTF headquarters and at every GCE level from and including the BLT.

The duties of personnel involved in naval gunfire support are essentially the same at all levels, although they will vary in extent and complexity. These duties are:

1. Serving as a member of the FFCC/FSCC
2. Determining requirements for NGFS by analysis of the operation plan, and consolidation and review of plans of subordinate units
3. Preparing requests for NGFS
4. Performing target analyses
5. Assisting in the coordination and integration of NGF with other supporting fires

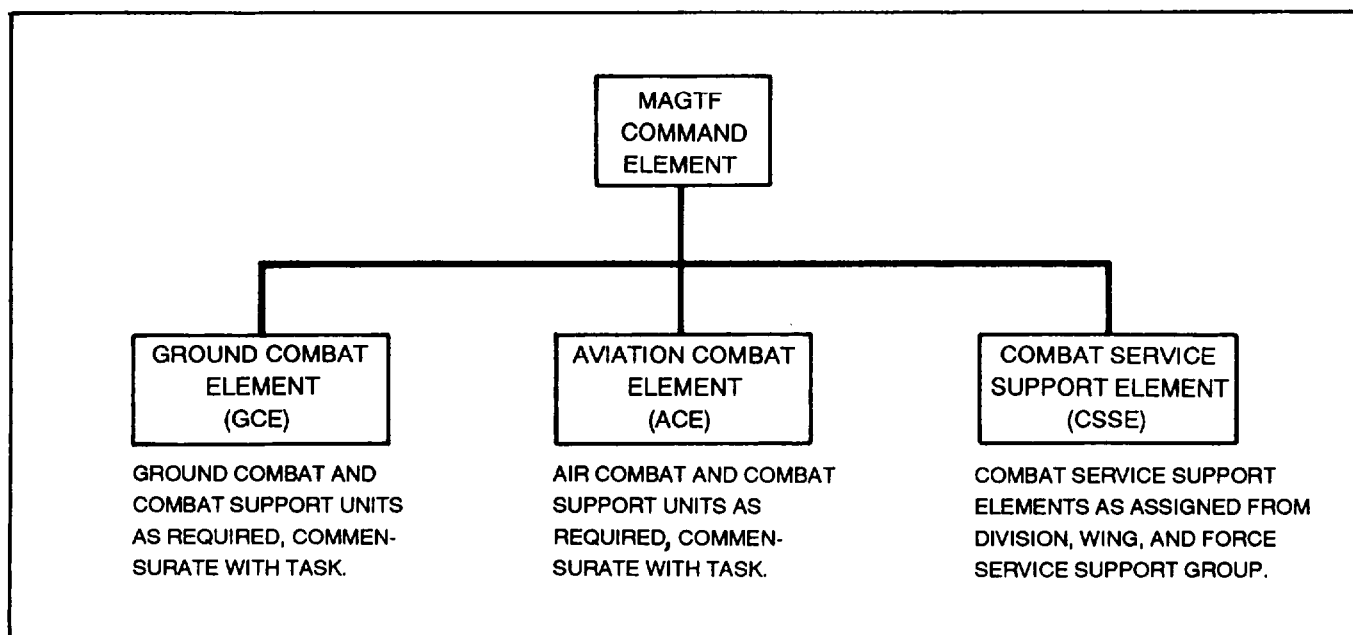


Figure 1-2. Marine Air-Ground Task Force (Typical Organization)

6. Ensuring that timely information is furnished to naval commanders regarding supported units

7. Providing information of the status of the naval ammunition supply as it affects supported units.

1.3.2 Naval Gunfire Section, Landing Force Headquarters. In Navy/Marine Corps amphibious operations, the MAGTF command element is the LF headquarters. The exact composition of the NGF section of the landing force headquarters depends on the requirements posed by the size of the LF. At the MEF echelon, a NGFO is on the table of organization of the MAGTF command element. Naval surface fire support expertise for the MEU command element may be provided by the NGLO of the BLT if available, the MEU assistant S-3/FFC, or by augmentation. The duties of the NGFO at the LF headquarters level include the consolidation and review of NGF requirements from subordinate echelons of the LF and the implementation of these and additional LF requirements into a recommended NGF plan for the entire LF.

1.3.3 Naval Gunfire Section, Ground Combat Element, Marine Air-Ground Task Force . The composition of the NGF section of the GCE of the LF will depend on the size of the GCE that is task organized as part of the landing force (e.g., the GCE of the MEU is normally a BLT, and the GCE of the MEF is normally a reinforced Marine division; however, certain situations may require up to two reinforced Marine divisions).

1.3.4 Naval Gunfire Section, Marine Division. This section, organic to division headquarters and part of the headquarters battalion for administrative/logistics support, is composed of the division NGFO, a lieutenant colonel; an assistant division NGFO, a Navy lieutenant commander; a NGF chief; and a plotter, supported by communication personnel from the air/naval gunfire platoon, communication company, Marine division. This section also controls the radar beacons that are used as navigational aids by the fire support ships. The division NGFO consolidates and reviews plans submitted by the regiments. He then prepares the division plan for NGFS for the division commander's approval.

1.3.5 Naval Gunfire Officer, Artillery Regimental Headquarters. The table of organization of the artillery regimental headquarters battery includes a Navy lieutenant commander as the NGFO. He coordinates the training of shore fire control parties in garrison, may assist the division NGF section with operational planning, and may be assigned as the NGFO at the

division alternate command post during operations in the field.

1.3.6 Regimental Naval Gunfire Liaison Team. One regimental NGF liaison team is contained in the headquarters of three battalions of the artillery regiment, thus making three teams available for support of regiments of the division. Each team is headed by a Navy lieutenant and has enlisted Marines for operational assistance and communications. During the initial planning stages for an amphibious operation, the regimental NGLO is normally directed to report to an infantry regimental commander for planning and training purposes. When directed, usually on activation of the MAGTF, the entire team normally is attached to the regiment for operations. The NGLO performs his duties as the regimental NGFO in the FSCC of the designated regiment. During the planning phase, he reviews, coordinates, and consolidates the NGF plans of the battalions together with the additional requirements of the regiment for submission to the regimental commander for approval.

1.3.7 Shore Fire Control Party. There are two SFCPs in the headquarters battery of three of the artillery battalions in the artillery regiment, making a total of six SFCPs available for support of the division. The SFCP is the basic unit for NGFS, containing both a planning and operational element, and is organized to provide support for a battalion. The SFCP, led by a Navy lieutenant, consists of a liaison team and a spot team. The Navy lieutenant, in addition to heading the SFCP, also heads the liaison team, while the spot team is led by a Marine officer. Each team consists of Marine enlisted men, who man the necessary communication nets and assist operationally. During the initial planning stages for an amphibious operation, the liaison officer is normally directed to report to an infantry battalion commander for planning and training purposes. When directed, usually on activation of the MAGTF, the entire SFCP is directed to report to a battalion for operations as directed by the infantry regimental commander. The Marine officer is trained to observe and adjust NGF, and normally operates from the battalion observation post or with one of the rifle companies. The SFCP liaison officer, a Navy officer normally school-trained in planning but also trained to observe and adjust NGF, performs the general duties of the battalion NGF officer under the cognizance of the battalion S-3. His staff responsibilities include:

1. Serving as a member at the battalion FSCC
2. Determining requirements for NGFS by a continuing analysis of operations

3. Preparing requests for NGFS
4. Performing target analyses
5. Assisting in the coordination and integration of NGF with other supporting arms
6. Ensuring that timely information is furnished to fire support ships regarding location of subordinate units of the battalion
7. Providing information on the status of naval ammunition supply as it affects the battalion
8. Planning and supervising the training of the SFCP.

1.3.8 Landing Force Comprised of U.S. Army or Allied Units. Since U.S. Army or Allied units may conduct landing operations in conjunction with or adjacent to FMF units, a discussion of their NGFS organization would be appropriate. Whenever U.S. Army or Allied units participate in an amphibious assault or other type of operation and fire support is provided by U.S. naval forces (i.e., NSFS, naval aviation, MAGTF aviation), an ANGLICO detachment is attached to provide the specialists and communications needed for the conduct of fire support.

1.3.8.1 Mission. The primary mission of the ANGLICO is to support a U.S. Army or Allied division, or elements thereof, by providing the control and liaison agencies associated with the ground elements of the LF in the control and employment of NGF and naval CAS in an amphibious assault, or in other types of operation in which support is provided by U.S. naval forces.

1.3.8.2 Organization. The company is organized to be capable of supporting a division, or elements thereof, by providing a combination of control and liaison teams commensurate with the echelon and size of the supported unit and with the type and amount of fire support to be provided. It is organized to provide a personnel and communication package to division, brigade (or regiment), and battalion echelons (see Figure 1-3).

1.3.8.3 Concept of Employment. The ANGLICO, FMF, is attached to a U.S. Army or Allied division for an amphibious assault or other type of operation in which fire support is provided by U.S. naval forces. Task organized control and liaison teams are further assigned to lower echelons to advise on the capabilities, limitations, and employment of naval gunfire and/or naval air support and to provide the necessary personnel and communications required to request, direct, and control the support. These teams are qualified to enter combat by means of parachute delivery.

1.3.9 Concept of Employment of Naval Gunfire Personnel. The proper employment of assigned NGF personnel and teams is necessary in order for the gunfire support system to effectively support the landing force. Trained liaison personnel are available to solve problems that may arise between fire support ships and supported units at each echelon of the LF down to and including the battalion.

1.3.9.1 Ground Combat Element(s), Naval Gunfire Section(s). Paragraphs 1.3.9.2 through 1.3.9.4 discuss the concept of employment of the NGF section of the GCEs of the LF.

1.3.9.2 Division Naval Gunfire Section. As indicated earlier, the division NGFO performs the general duties of a special staff officer under the staff cognizance of the division G-3.

1.3.9.2.1 Employment During Planning. When the division is a GCE of an MAGTF, the division NGF section becomes intimately involved with supporting arms planning to ensure the integration of NGF support with other supporting arms.

1.3.9.2.2 Employment During Operations. Until the division FFCC is established ashore, a representative of the division NGF section should be with the LF naval gunfire representative in the SACC aboard the flagship of the CATF. When coordination and control (fire control) is passed ashore, the division NGF section then functions within the division FFCC to coordinate division NGF matters until all division units are out of naval gunfire range. Naval gunfire personnel are then normally used to augment other division headquarters support sections.

1.3.9.3 Regimental Naval Gunfire Liaison Team. As indicated earlier, the regimental NGF liaison team is part of the artillery battalion, artillery regiment and is attached to each of the infantry regiments for amphibious planning and operations. The regimental NGLO, who heads the liaison team, performs the duties of a special staff officer NGFO on the regimental commander's staff, under the staff cognizance of the regimental S-3. The duties of the regimental NGFO when the regiment is the GCE of the MAGTF are essentially the same as those duties that normally would be performed by the division naval gunfire officer.

1.3.9.3.1 Employment During Planning. During the planning phase of an operation, the regimental naval gunfire liaison team should be physically located with the regiment to which it will be assigned for the operation. The regimental NGLO then becomes an integral part of the regimental commander's staff. He

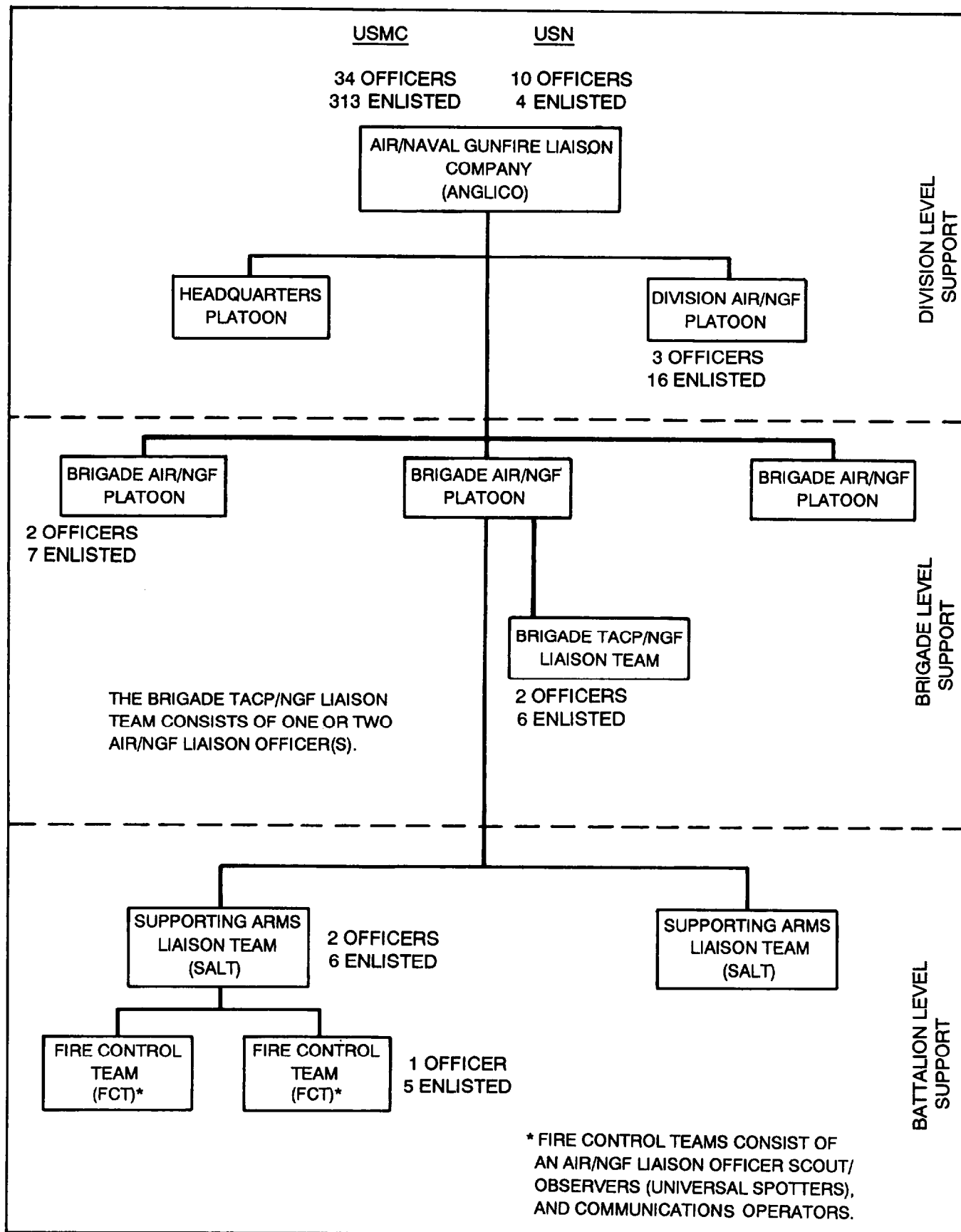


Figure 1-3. Air/Naval Gunfire Liaison Company U.S. Marine Corps, Fleet Marine Force

should be readily available to advise and assist the commander or members of his staff on NGF matters. This liaison officer will also coordinate the efforts of the SFCPs assigned to battalions within the regiment. Battalion requirements determined during this planning phase will be reviewed and consolidated by the regimental NGLO and, after regimental requirements are incorporated, will be forwarded to the division commander or CLF as appropriate.

1.3.9.3.2 Employment During Operations.

Once the regimental headquarters is established ashore, the regimental NGF liaison team will normally be working within the regimental FSCC. Its primary functions will be to coordinate NGF activities within the regiment and to supervise and direct the activities of the general support ship(s) assigned in support of the regiment. On occasion, the regimental NGFO may be required to act as a spotter. When this occurs, the liaison team will maintain the required communications within the FSCC.

1.3.9.4 Battalion Shore Fire Control Party. As previously indicated, the SFCP is a part of the artillery battalion, artillery regiment and is assigned to one of the infantry battalions for amphibious planning and operations. The SFCP liaison team officer NGLO performs the staff duties of a special staff officer NGFO on the battalion commander's staff, under the staff cognizance of the battalion S-3. The duties of the BLT NGLO when the BLT is the only GCE of an MEU are the same as those duties performed by the division NGFO.

1.3.9.4.1 Mission of the SFCP. The mission of the SFCP is to obtain and control NGFS for a battalion. In accomplishing this mission, the SFCP performs two broad tasks:

1. Provides special staff representation in NGF matters for the battalion commander (performed by the NGF liaison team)
2. Controls and adjusts the fires of ships assigned to support the battalion (through the NGF spot team).

1.3.9.4.2 Duties of the Battalion Naval Gunfire Liaison Officer. The battalion NGLO supervises the activities of the NGF liaison team and:

1. Studies appropriate parts of the LF, ATF, and battalion operations plans/orders; familiarizes himself with the general scheme of gunfire support of the battalion to include:

- a. Time and place of landing and the battalion mission
 - b. Targets to be covered by prearranged bombardment
 - c. Terrain in zone of fire, with particular attention to probable targets, masks, locations for observation posts, and offshore hydrography
 - d. Radio frequencies, call signs, and authentication systems assigned
 - e. Ship or ships assigned to general and/or direct support of his unit.
2. When necessary, superimposes target grid, fire support areas and stations, target information, and other necessary information on all battle maps for the SFCP.
 3. Ensures that the NGF spotter possesses all necessary information and instructions.
 4. Whenever possible, confers with the gunnery and communication officers of the fire support ship(s) that are to be assigned in direct support and, if circumstances permit, carries out gunnery and communication drills between ship and SFCP.
 5. Maintains liaison with the S-3, S-2, and communication officers of the battalion.
 6. Maintains close liaison with the artillery and air representatives.
 7. Maintains liaison with the regimental (or next senior) NGFO.
 8. Effects liaison with the battalion communication officer to determine if emergency communication support requirements will be satisfied by the supported battalion or the SFCP of the parent artillery battalion.
 9. Effects liaison with the battalion embarkation officer to ensure SFCP equipment and personnel are loaded and landed to achieve maximum utilization during the early phases of an amphibious operation.

1.3.9.4.3 Duties of the Naval Gunfire Spotter During Planning. The NGF spotter supervises the activities of his team and:

1. Obtains from the battalion NGLO all pertinent NGF information contained in ATF and LF operation plans/orders, together with all maps, aerial photographs, and target information required.
2. Studies the foregoing information and correlates it with the supporting unit landing plan and scheme of maneuver.
3. Assures that members of his team and all team equipment are ready for combat; supervises waterproofing of communication equipment.
4. On the basis of map and aerial photographic reconnaissance, makes tentative selection of the initial observation post.

1.3.9.4.4 Liaison Team Procedures During the Ship-to-Shore Movement. The liaison team is usually landed in two echelons as determined by the battalion SOP. The NGLO normally lands in the same wave as the battalion commander, and the other echelon lands with the executive officer. One of the most important duties of the NGLO during the ship-to-shore movement is keeping higher echelons informed on the progress of the landing so that scheduled fires can be modified accordingly.

1.3.9.4.5 Liaison Team Procedures After Landing. The battalion NGLO supervises the activities of his team and:

1. Takes station with the air and artillery liaison officers in the immediate vicinity of the command post (normally the battalion FSCC) or as directed by the battalion commander, and establishes prescribed communications.
2. Updates himself on the situation and location of friendly units, passing this immediately to the naval gunfire spotter, supporting ships, and higher echelon NGF officers.
3. Requests fire support ship to take a specific station when desirable for safety of friendly forces, attack of defiladed target, or for mask clearance.
4. Continually studies the effect of terrain with respect to gunfire trajectories from the various fire support areas.
5. Obtains from the ship the amount and types of ammunition available and periodically passes this information on to the supported unit commander and spotters, when appropriate.

6. Records briefly all fire missions conducted by the SFCP.
7. Prepares requests for, and recommends to the battalion commander, special NGF missions, fire plans, additional support ships, air spotter, and offshore spotter, as required; passes all approved requests to the next highest echelon NGFO.
8. Informs next higher echelon NGFO of targets lying in the zones of action of other units.
9. Assists the NGF spotter in coordination of star shell illumination.
10. Maintains close personal liaison with air and artillery representatives with the battalion. Informs the NGF spotter of projected airstrikes or planned artillery fires in the unit's area of operations.
11. Informs the NGF spotter of all higher echelon fires that may be placed in the supported unit's area of operations.
12. Keeps the NGF spotter informed of all planned maneuvers of the supported unit.
13. Initiates action to replace materiel or personnel casualties within the SFCP.
14. Acts as a NGF spotter when necessary.

1.3.9.4.6 Naval Gunfire Spot Team Procedures During the Ship-to-Shore Movement. The spot team is landed in an early wave normally with the company whose zone promises best observation throughout the area of operations. Usually, the spot team is also landed in two echelons, each being capable of performing the necessary tasks for a limited period of time. Communications with other LF NGF agencies are maintained throughout the ship-to-shore movement. If the spot team is landed by LVT, the ground spot net may be activated using vehicular-mounted sets. Under certain conditions, an offshore spot team may be desirable. It is usually formed around the assistant spotter who remains offshore in a free boat and adjusts fire until observation and communications are established ashore.

1.3.9.4.7 Spot Team Procedures After Landing. The NGF spotter supervises the activities of his team and:

1. Selects the best available observation post; plans his routes of movement based on the scheme of maneuver.
2. Establishes prescribed communications.
3. Orients his map, determines the location of his observation post, and transmits this information to the supporting ship together with all available information as to location of friendly forces; keeps the ship informed as to friendly frontlines until the battalion NGLO has landed and is in communication with the ship.
4. Studies map and observes terrain to front and flanks, notes location of planned targets, selects other targets, and notes the possible masking of all targets.
5. Calls for and adjusts fire on targets of opportunity.
6. Wherever possible, directs ship to employ direct fire against suitable targets.
7. Establishes contact, as practicable, with the battalion artillery forward observers and forward air controllers.
8. Reports to the battalion NGLO officer for hostile dispositions and movements and any targets lying in the area of operations of adjacent units.

1.3.9.4.8 Selection of Observation Posts. Whenever practical, the observation post is selected near the observation post of the battalion commander. This ensures close coordination between attack of targets of opportunity and small unit maneuvers and decreases the probability of placing fire on friendly forces. The following factors will influence the selection of a suitable observation post:

1. Concealment
2. Covered approaches
3. Avoidance of prominent landmarks
4. Ease of maintaining communications
5. Local security.

1.3.9.4.9 Air Spotter. To close the gap between H-hour and the time when call fires begin, air spotters

act as supplementary spotting agencies for assault units. In addition, spotting aircraft may be employed throughout the operation.

a. Control. It is fundamental in NGF air spotting that the NGLO retains the prerogative to modify or terminate an air spot mission at any time. Both for the sake of safety and for coordination of fires with fire and maneuver on the ground, all air spot missions within the supported unit's area of operations must receive clearance.

b. Functions During Initial Stage of Landing. An important function of the air spotter in the initial stage of a landing is to assist in gaining early positive control of gunfire support ashore so that prearranged fires may be terminated and the more effective call-fire phase begun.

1.3.9.4.10 Artillery Forward Observer. The availability of only two SFCs organic to the direct-support-structured artillery battalion may occasionally result in a shortage of spotters for conducting NGFS for the infantry regiment. Under such circumstances, artillery forward observers may act as NGF spotters. There is enough similarity between the artillery and the NGF system that a trained artillery observer could call for and adjust NGF with a minimum of additional instruction. The requirement for additional spotters becomes evident early in the planning phase, thus giving adequate opportunity to provide the small amount of additional instruction needed for the artillery observers to perform as NGF spotters.

1.4 LANDING GROUP

The landing group is a subordinate organization of the LF. The size of the LF unit that composes a landing group is not fixed, but depends upon the tactical situation. The landing group commander's staff includes a NGFO who functions as a counterpart of the attack group staff gunnery officer.

1.5 NAVAL GUNFIRE OPERATIONS

When NGFS is employed in support of land operations (that is, non-amphibious operations or after the SACC has ceased to function), the NGF operations center is established in a ship to control the execution of plans for the employment of NGFS and process requests for NGFS. It is an agency of the naval force commander, and it may include a representative of the supported LF.

CHAPTER 2

Operations

2.1 MISSION AND CHARACTERISTICS

2.1.1 Mission of Naval Gunfire. Naval gunfire plays a vital role in supporting LF units during amphibious operations.

2.1.1.1 Mission. The general mission of NGF is to support amphibious operations by destroying, neutralizing or suppressing:

1. Shore installations that oppose the approach of ships and aircraft
2. Defenses that may oppose the LF
3. Defenses that may oppose the postlanding advance of the LF.

2.1.1.2 Tasks. The preceding operations are executed during various phases of the operation through the assignment of specific tasks. Some of the tasks assigned during specific periods are discussed in paragraph 2.7.

2.1.2 Characteristics. In order to utilize NGF effectively, it is necessary to understand the capabilities and limitations of NGFS.

2.1.2.1 Capabilities

2.1.2.1.1 Mobility. Within limits imposed by hydrography and hostile action, the firing ship must be positioned for the best support of the LF and also for maneuver to avoid shore battery fire. This ability to maneuver allows the selection of the most favorable gun-target line, and is an important factor when planning for the support of widely separate beaches.

2.1.2.1.2 Fire Control Equipment. Automated fire control permits accurate fire whether at anchor or underway. Optical and electronic equipment aboard ship makes observation of targets possible under favorable conditions, thus permitting direct fire by the ship.

2.1.2.1.3 Ammunition. The different types of projectiles, powder charges, and fuzes available in most of the calibers permit selection of the optimum combination for the attack of most targets.

2.1.2.1.4 High Initial Velocity and Flat Trajectory. The high initial velocity and flat trajectory of the naval gun projectile makes it suitable in the direct fire role for the penetration and destruction of material targets, particularly those presenting an appreciable vertical face to the gun-target line.

2.1.2.1.5 Rate of Fire. The large volume of fire that can be delivered in a relatively short period of time is a distinct advantage when delivering neutralization fires.

2.1.2.1.6 Deflection Pattern. The dispersion pattern is very narrow in deflection and long in range. This is characteristic of any gun system as compared with the dispersion pattern of the howitzer or mortar. Because of this characteristic, close supporting fire can be delivered when firing parallel to the frontlines.

2.1.2.2 Limitations

2.1.2.2.1 Hydrography. Unfavorable hydrographic conditions such as shallow waters, reefs, shoals, etc., may force the firing ship to take an undesirable firing position with respect to the target area. The presence of mines can require that initial firing positions be farther from the target area than is desirable.

2.1.2.2.2 Fixing Ship's Position. The accuracy of NGF depends upon accuracy with which the position of the firing ship has been fixed. In areas where navigational aids are lacking, there will be appreciable inaccuracies in unobserved fires and in initial salvos of observed indirect fires. Employment of radar beacons and reference points identifiable by both ship and spotter will reduce this problem.

2.1.2.2.3 Weather and Visibility. Bad weather and poor visibility make it difficult to determine ship's position by visual and radar means and reduce the

observer's opportunities for locating targets and adjusting fires. Additionally, the gun fire control gyro stabilizer can only compensate for 15° to 20° of pitch and roll.

2.1.2.2.4 Changing Gun-Target Line. When the ship is firing while underway, the gun-target line may change relative to friendly positions. Under certain conditions this can cause cancellation of the fire mission because of the danger to friendly forces. This position may be partially offset by restricting the movement of the ship.

2.1.2.2.5 Range Pattern. This dispersion pattern of the naval gun is elliptical with the long axis of the pattern along the direction of fire. While this provides an advantage when the long axis of the target is parallel to the gun-target line, close supporting fires when firing over the heads of troops are not always possible.

2.1.2.2.6 Flat Trajectory. Flat trajectory is unsuitable for the attack of targets in defiladed positions.

2.1.2.2.7 Ammunition Capacity. Magazine capacity of fire support ships is limited. While a relatively high percentage of total ammunition suitable for bombardment is made available for gunfire support, some must be retained for the ships' self defense.

2.1.2.2.8 Communications. All communications between ship and shore depend upon radio. This single means of communications is susceptible to interruption by equipment limitations, enemy electronic warfare, and unfavorable atmospheric conditions. Communications may be further degraded by the constantly moving ships and shore fire control parties.

2.1.3 Gunfire Support Ships. Characteristics of individual ships within a class sometimes vary considerably. Detailed information about a particular ship or ships may be found in NWP 65-0-1. The publication, Armament of Naval Vessels of the United States, contains a statement of installed and ultimate armament of major ordnance for all U.S. Navy vessels, regardless of their fleet status. The size and physical dimensions of a NGFS ship directly affect its ability to maneuver and determine its ammunition stowage capacity. The draft of the ship determines how close to the shoreline it may be positioned; the number of guns and nature of the ship's fire control system determine the number of indirect fire missions that can be conducted simultaneously. It must be emphasized that the ammunition capacities will vary from ship to ship within a class. Figure 2-1 shows ammunition capabilities.

2.1.3.1 Types of Ships. Ships suitable for gunfire support include cruisers and destroyers.

2.1.3.1.1 Guided Missile Cruisers (CG, CGN). The various CG classes carry two 5-inch/54 caliber rapid fire guns and surface-to-surface missiles. Maximum effective ranges of these batteries is 23,127 meters.

2.1.3.1.2 Destroyers (DD, DDG). The types of ships most frequently found in a gunfire support role are destroyers. Their normal role is in direct support of a battalion. The armament is the 5-inch/54 caliber rapid fire gun. The maximum effective range is 23,127 meters.

2.1.3.1.3 Amphibious Assault Ships (LHA). This type of ship is the least likely to perform in a gunfire support role, since it cannot simultaneously conduct NGF missions, flight operations, and wet well operations. These ships have two single 5-inch/54 caliber rapid fire guns.

2.1.4 Naval Gunfire Support Missions. There are only two tactical missions that may be assigned NGFS ships when in support of the LF — direct support and general support. During planning, CLF submits requests to CATF for certain types of ships for specific tactical missions. CATF then organizes his naval forces and assigns ships in a manner that will best support the LF scheme of maneuver.

2.1.4.1 Direct Support (DS). In this relationship, the ship delivers prearranged and call fires for the supported unit. Call fires are normally requested and adjusted by a shore fire control party spotter of the supported unit or by an air spotter; however, simplified and standardized procedures are such that any trained observer can effectively adjust the fires of a ship. Each assault battalion is normally assigned one DS ship.

2.1.4.2 General Support (GS). The fires of a ship in general support are conducted as directed by NGLO of the unit being supported. The primary purpose of a general support assignment is to give the supported commander a means of adding weight to the fires of direct support ships without the necessity for request to higher echelons of command. Fire missions against targets of opportunity are conducted directly by fire support ships as provided for in the NGF plans. Prearranged fires are delivered in accordance with a schedule of fires that is a part of the NGF plan. Units of regimental size or larger, not in reserve, are assigned one or more GS ships.

NAVAL GUNFIRE WEAPONS CAPABILITIES				
Weapon	5"/54 Mk 42/Mk 45			
Max range (m)	21,887			
Full charge				
Max range (m)reduced charge	12,2000			
Ammo	HE/HC/ILL/WP			
Max Rate of Fire (RPGPM)	32/20			
Sustained Rate of Fire	30/16			
Fuzes	PD/MT/CVT/DEL			
Danger Close (m)	750			

ILLUMINATION FACTORS				
Burn Time (Sec)	45		45/72	
Rate of Fall (m/Sec)	10		10/2	

ARMAMENT				
Ship Class	Gun Calibers	NR. GUNS	Magazine Capacity	HE bursting Radius (meters)
CGN-36/38/CG-47	5"/54	2	1,200	45
DD-963/DDG-993	5"/54	2	1,200	45
DDG-51	5"/54	1	600	45
FF-1052	5"/54	1	600	45
LHA-1	5"/54	2	1,200	45

Figure 2-1. Naval Gunfire Weapons Capabilities

2.2 CLASSIFICATION OF FIRE

The principal categories of NGF delivered on shore targets are described in the paragraphs that follow. NGF is classified by effect, tactical use, degree of prearrangement, type, and technique.

2.2.1 Effect. NGF may be divided into six broad classes, each designed to produce a desired effect.

2.2.1.1 Destruction Fire is delivered for the sole purpose of destroying material objects. A spotting agency is required. At other than short ranges, use of considerable time and a heavy expenditure of ammunition may be expected. A thorough analysis of targets selected for destruction must be accomplished to ensure the proper selection of shell and fuze to obtain the desired effect.

2.2.1.2 Neutralization Fire is delivered to hamper and interrupt movement and/or the firing of weapons. Neutralization is a comparatively temporary effect and the target may become active soon after the fire ceases.

2.2.1.3 Suppression Fire is delivered on known or suspected enemy locations to temporarily degrade the enemy's capability to place fire on friendly elements or otherwise impede friendly operations. Its effect upon the target lasts only while the fire is being delivered.

2.2.1.4 Harassing Fire is designed to disturb the rest of the enemy troops, curtail movement, and by threat of losses, lower morale.

2.2.1.5 Illumination Fire permits illumination of an enemy area, observation of hostile night operations, adjustment of observed fire during hours of darkness, and assistance to friendly night operations.

2.2.1.6 Interdiction Fire is placed on an area or point to prevent the enemy from using that area or point effectively. Examples would be the interdiction of roads, rail, routes, and other lines of approach or communication in order to prevent, reduce, or disrupt the enemy forces, supplies, and communications.

2.2.2 Tactical Uses

2.2.2.1 Close Supporting Fire is placed on enemy troops, weapons, or positions which, because of their proximity, present the most immediate and serious threat to the supported unit. It requires detailed coordination with the movement of the supported unit.

2.2.2.2 Deep Supporting Fire is directed on objectives not in the immediate vicinity of own forces for

neutralizing and destroying enemy reserves and weapons, and interfering with enemy command, supply, communications, and observations.

2.2.2.3 Preparation Fire is an intense volume of fire delivered in accordance with a time schedule to support an assault.

2.2.2.4 Counterfire is intended to destroy or neutralize enemy weapons. This includes counter battery, counter bombardment, and counter mortar fire.

2.2.2.5 Reconnaissance Fire is a method of reconnaissance in which fire is placed on a suspected enemy position to cause the enemy to disclose his presence by movement or return of fire.

2.2.2.6 Suppression of Enemy Air Defenses Fire. That activity which neutralizes, destroys, or temporarily degrades enemy air defenses in a specified area by physical attack and/or electronic warfare.

2.2.2.7 Defensive Fire is delivered by supporting units to assist and protect a unit engaged in a defensive action.

2.2.2.8 Protective Fire is delivered by support ships during the period of reorganization after the capture of a position.

2.2.2.9 Obscuration Fire uses WP projectiles to suppress the enemy by obscuring his view of the battlefield. Used properly, it can slow the enemy, reduce the accuracy of his weapons and observers and cause him confusion. Small quantities of WP onboard ship and rapid dissipation of WP effects limit the effectiveness of using naval gunfire for obscuration.

2.2.2.10 Screening Fire. Screening fire also uses WP projectiles to mask friendly maneuver elements and to conceal the nature of their operations. For example, they may be used to screen a river crossing. The same limitations on NGF effectiveness for obscuration fire apply to screening fire.

2.2.2.11 Countermechanized Fire is delivered against activity enemy mechanized units.

2.2.3 Degree of Prearrangement

2.2.3.1 Prearranged Fire is formally planned and executed against targets or target areas of known location. Such fire is usually planned well in advance and is executed at a predetermined time or during a predetermined period of time (scheduled fire). It can also include prearranged fire that may be called for (on call) by the

controlling agency. Some targets may be fired on purely on call, some according to the predetermined time schedule, and others during a predetermined period, commencing when requested by the controlling agency. Prearranged fire is delivered against enemy defenses whose presence is known from prior reconnaissance and intelligence or is suspected from a study of the objective area and its adjacent terrain. Since not all enemy defenses will have been located previously, provision must be made for shifting from prearranged fire to targets of opportunity if the relative importance of the targets warrants such action.

2.2.3.2 Call Fire is delivered on a specific target in response to a request from the supported unit. Except in an emergency, call fire missions must not be interrupted without permission of the unit or agency requesting the fire.

2.2.3.3 Opportunity Fire is delivered (without any formal planning or LF request) on newly discovered targets or transitory targets. Targets of opportunity are visible to a surface or air sensor or observer, that is within range of available weapons. Targets of opportunity may present themselves to the firing ship at any time, but such fire must be delivered with due regard for the safety of friendly forces. Ships delivering fire on targets of opportunity within the boundaries of LF units require the approval of the LF echelon concerned before opening fire, while ships executing deep support missions must be certain that the target of opportunity is within their assigned zone of fire.

2.2.4 Types of Fire

2.2.4.1 Area Fire is a volume of fire delivered in a prescribed area. Area fire is generally neutralization fire.

2.2.4.2 Precision Fire is used for registration (to obtain corrections for increasing the accuracy of subsequent fire) and for attack and destruction of point targets.

2.2.4.3 Defilade or Reverse Slope Fire is delivered against targets that are located over a hill or ridge. (Because of the flat trajectory of high velocity naval projectiles, the hill or ridge may mask the target, making it necessary to change the gun-target line, open range, or use reduced charges.)

2.2.4.4 Enfilade Fire is delivered on a target so that the range pattern of the fall of shot generally aligns with the long axis of the target.

2.2.5 Technique of Delivery

2.2.5.1 Direct Fire is fire directed at a target that is visible to the aimer. In this type of fire, spotting is generally carried out from the ship, is usually most accurate, and requires the least expenditure of ammunition.

2.2.5.2 Indirect Fire is fire delivered at a target that cannot be seen by the aimer. For most effective results, these fires are spotted by air or ground observers.

2.3 ZONES OF FIRE

The land within the objective area is divided into zones of fire that are assigned to gunfire support ships as a measure to coordinate their efforts with each other and with the scheme of maneuver of the supported troop units (see Figure 3-3). Fire support units or individual ships are assigned these zones for destroying or neutralizing known enemy installations and attacking targets of opportunity within their zone in accordance with the tactical mission assigned and the directives of the appropriate commander. The size and shape of the zone will depend upon the factors described in the following paragraphs.

2.3.1 Boundaries. The boundaries of a zone of fire should correspond to the zone of action, TAOR, or sector defense of the supported unit. This simplifies the problem of coordinating gunfire support with the action of the supported LF unit. When two or more ships have the mission of supporting a single task organization, the zone of action of the supported unit may be divided into a corresponding number of zones of fire. When consistent with the other considerations in this paragraph, boundaries of zones of fire will be recognizable from both the terrain and the chart. Boundaries must be changed when necessary to ensure coordination of gunfire support with the troop scheme of maneuver and progress of the advance inland.

2.3.2 Size. The size of each zone will be such that the fire support ship, or ships assigned to observe and/or destroy targets, will be able to accomplish the mission within the time planned. When the zones of fire are delineated, the known or suspected targets scheduled for engagement in each zone are plotted, and the number and type of targets compared with the capability of the ship to conduct assigned fire missions.

2.3.3 Visibility. Observation from seaward of well defined terrain features (navigational points) is a desirable feature for zones of fire, since it permits a ship to deliver more accurate and rapid fire.

2.3.4 Accessibility to Fire. The zone of fire or portions thereof must be accessible to the trajectory of the fire support ship(s) assigned to the zone.

2.3.5 Target Areas. In order to facilitate control and coordination of NGF in the early phases/stages of an amphibious landing, the terrain to be neutralized or fired upon is divided into blocks called target areas. Those target areas located on and immediately adjacent to the landing beach/zone will normally have neutralization fire scheduled to shift and lift in accordance with the scheme of maneuver ashore and in conformance with the actual rate of advance of the LF. Target areas not in close proximity to the beach may have scheduled or on-call fire planned. All target areas are given numerical designations and are shown on the operations overlay (see Figure 3-3). The size, shape, and location of target areas are influenced by:

1. Selected landing beaches/zones
2. Expected rate and direction of advance by the landing force
3. Terrain
4. Density and design of enemy defenses
5. Direction of line of fire
6. Caliber and type of projectiles
7. Ease of identification
8. Fire support coordination measures
9. Zones of action of attacking troops.

2.3.6 Designing Target Areas. A typical procedure for designing target areas is to:

1. Obtain the scheme of maneuver, including the battalion boundaries, from the LF
2. Obtain the estimated rate of advance of the LF through H+2 hours (or until it is estimated that call fire can be expected to commence)
3. Break up the area to be neutralized into blocks within each battalion zone of action.

2.3.6.1 Lateral Boundaries. The lateral boundaries of blocks will correspond to the boundaries of each battalion zone of action. The blocks need not extend the width of the battalion zone, however, but may be smaller for control purposes.

2.3.6.2 Depth. The depth of the blocks is based on the pattern of the armament firing into each block and the estimated rate of LF advance. The safety limitations on unobserved and/or overhead fire must be considered for the feasibility of shifting fire as the LF advances.

Target areas are used in controlling and timing fire by establishing the depth of the blocks to conform to fire safety limitations and scheduling fire one or two blocks ahead of the planned LF advance. Any simple numbering system can be used for designating the areas. The numerical system selected must prevent duplication or omission of neutralization fire in the schedule of fire.

Select areas or targets to be neutralized by deep supporting fire. These will normally include bivouac areas, field artillery or AA gun positions, mortar positions, and so forth. Designate these areas in a manner that will be clear to all concerned, so they will not be confused with close support target areas.

2.4 FIRE SUPPORT AREAS AND STATIONS

Each fire support unit, or in certain cases, each individual fire support ship executing fire support missions is assigned to a definite sea area or station in which to operate by the CATF. These areas are called FSA or FSS. They are given numbers and are displayed on various overlays. CATF or his designated representative (i.e., fire support group commander) will position NGFS ships in these areas. The NGLO on the LF staff makes recommendations on the construction of these fire support areas/stations. These recommendations are passed from the CLF staff to the CATF staff. In establishing FSAs and FSSs, CATF considers hydrographic conditions and the possible requirement for minesweeping operations; NGFS ships' characteristics (i.e., range, mobility, gun trajectory, etc.), ability to support the LF scheme of maneuver (i.e., terrain features, favorable gun-target line), the threat of receiving shore battery fire, and proximity to ship-to-shore operations.

2.4.1 Size, Shape, Location of Fire Support Areas. Considerations influencing these areas are:

1. Maneuvering room will be allowed for the greatest possible freedom of ships in the execution of their assigned tasks and for evasion of enemy attack
2. The possibility of "overs" or ricochets hitting other friendly ships or craft will be minimized

3. Assigned fire support areas will afford best position in respect to range, gun-target line, and observation
4. Fire support ships will not interfere with the ship-to-shore movement
5. When practicable, assigned areas will be located to minimize dangers from special weapons.

2.4.2 Designing Fire Support Areas

1. Select the sea areas that best satisfy the requirements listed in the preceding paragraph and plot them on the operations overlay.
2. Delineate the boundaries of each fire support area in such a manner that they may be readily identifiable on the overlay. Designate with Roman numerals.
3. Give consideration to the navigational aids available to ships, in order to assist them in remaining within their assigned fire support areas.

2.4.3 Fire Support Stations. At times, it may be advantageous to use a FSS plan whereby the firing ships are placed and maintained in exact locations (designated with arabic numerals). Such a plan can be used to station ships within the boat lanes or other stations whenever maneuvering room is sufficiently restricted by other considerations. Advantages of this plan are that it:

1. Increases accuracy of fire
2. Usually permits firing at shorter ranges
3. Reduces interferences between units afloat
4. Allows for prior determination of the most advantageous line of fire.

The disadvantage involved in this plan is the loss of mobility of the individual ship.

2.5 SAFETY CONSIDERATIONS AND LIMITATIONS

Safety in firing is a shared responsibility between the agency controlling the fire and the agency actually providing the fire. The agency controlling the fire shall be responsible for designating the location on which the fire is to be placed and all subsequent adjustments. The firing agency shall be responsible for the safe firing of the guns. The firing agency also has the responsibility to alert the controlling agency of any

potentially unsafe situations. The minimum distance from the front lines at which prearranged close supporting gunfire may be placed safely depends upon:

2.5.1 Availability of Observers. If an observer (airborne or ground) is available to adjust the fall of shot, fire may safely be brought closer to friendly front lines than if the fire is unobserved.

2.5.2 Error of the Mean Point of Impact. The error of the MPI with respect to the target depends on the state of training and material conditions of the individual fire support ship, the accuracy of the charts, and the firing range. The expected range error of the location of the mean point of impact from the target normally will not exceed four percent of the firing range. This factor must be considered when determining the safety limitations of initial salvos.

2.5.3 Pattern Size of the Armament. Deflection and range patterns affect the safety limitations of initial salvos. Generally:

1. Deflection patterns will be so slight that all bursts merge when viewed along the gun-target line.
2. Range patterns vary such that about sixty percent of the patterns will lie within the limits established by the mean error in range for the caliber of gun.
3. Pattern sizes vary considerably from salvo to salvo.

Determining safety limitations of initial salvos should also include:

1. The standards of deflection and range patterns for the calibers of naval guns to be used in supporting fire.
2. The variations from standard for fire from the particular armament aboard ship.

Type commanders will determine a standard pattern figure by comparing the performance under best conditions of the same caliber guns on similar ships.

2.5.4 Direction of Gun-Target Line. The direction of gun-target line in relation to friendly front lines and/or direction of landing force advance must be considered. Expected errors of individual shots within the salvo, and bursting radius, also are factors to be considered when determining how close the fall of shot may come to friendly positions with a given gun-target fire. When

firing close to friendly forces, it must be remembered that the effective bursting radius will not include all the lethal fragments.

2.5.5 Call Fire

2.5.5.1 Initial Salvo. The minimum distance from friendly forces for the initial salvo for call fire missions will depend on:

1. Expected pattern size of the salvo
2. Expected error in the fall of shot
3. Direction of gun-target line in relation to friendly lines
4. Conditions of observation
5. Bursting radius of projectiles and type of burst employed
6. Familiarity of spotter with ship's capabilities in delivering naval gunfire support
7. Amount of cover afforded own forces by terrain or prepared positions
8. Tactical situation
9. Probable accuracy of target location by the spotter
10. Recommended safety distances from friendly troops for the initial salvo of a 5-inch naval gun is 750 meters.

2.5.5.2 Adjusted Salvos. Analyses of operational and practice data have shown that the differences in range and deflection errors for initial salvos as compared to adjusted salvos are sufficiently large to warrant separate consideration. When firing on targets in the immediate vicinity of own forces, it may be necessary to place the initial salvos well clear, then walk the MPI toward the front lines in small increments. However, care must be exercised so that the offset initial salvo does not endanger adjacent friendly forces or previously declared Class E targets. Recommended minimum safety distances from friendly troops for adjusted salvos of a 5-inch naval gun are 200 meters when firing parallel to front lines and 350 meters when not firing parallel to front lines. ICM (MK 144) rounds should be fired with caution in the vicinity of friendly forces because of uneven dispersion patterns.

2.5.6 Danger to Friendly Aircraft. To prevent endangering friendly aircraft, close and continuous coordination must be effected between those agencies controlling aircraft and those controlling the delivery of surface fire. The airspace coordination area may be required to control surface fires. Varying conditions of terrain, force dispersion, and enemy disposition and activities are factors that will determine the fire support coordination measures to be utilized.

2.6 TRAINING AND RESPONSIBILITY

Type commanders are responsible for basic training in the elements of NGFS for ships of their commands. The CATF of the appropriate fleet, under the fleet commander, is responsible for approving standards of excellence and conducting advanced training in conjunction with landing exercises.

2.6.1 Training of Shore Fire Control Parties. NGLOs and spotters must have basic training in their respective military occupational specialties. Subsequent to this basic training, all LF NGF personnel must receive specialized training with their own units in NGF. This will be followed by joint unit training with ships, as scheduled by the CATF and responsible CLF, who are at all times responsible for the efficiency of NGF elements within their commands and for the thorough indoctrination of subordinate units in the employment of NGFS. Advanced exercises conducted periodically under the direction of the CATF must be utilized for the advanced training of NGF personnel.

2.6.2 Exercises. Realistic exercises, in which the LF actually lands under fire support furnished by ships, must be held as frequently as practicable, using the same technique to be employed in an actual opposed landing. Target overlays and areas, FSAs, lines of fire, LF units supported, and other related factors must approximate combat conditions as closely as possible. Plans will be prepared and used in the same manner as in an actual operation.

When a particular phase of training is conducted, results obtained must be carefully analyzed and presented at critiques so that mistakes may be corrected and techniques improved and that all prospective gun-fire ships, craft, and liaison personnel may reach the required standards of excellence. Frequent refresher courses in basic training will be required for individual ships, as well as frequent rehearsals for combined elements of the amphibious task force.

2.7 OPERATIONAL PHASES

NGFS is divided into three operational phases — preparation of the objective (pre-D-Day), landing (D-Day), and after landing (post-H-Hour). Each phase is clearly separated in the time sequence of the operation. However, even though the requirements for NGFS are different in each phase, the total NGFS are different in each phase, the total NGFS requirements must be considered together in order to arrive at the NGFS plan.

2.8 PREPARATION OF THE OBJECTIVE

Some or all of these operations will be conducted simultaneously, requiring the assignment of fire support ships to specific tasks. Generally, tasks that take priority over others in time and ammunition are:

1. Destruction fire missions
2. Neutralization fire missions
3. Support of mine warfare operations
4. Support of reconnaissance and demolition operations
5. SEAD missions.

The general pattern of the pre-D-day bombardment will avoid, as far as practicable, disclosure of the precise location of the landing.

2.8.1 Destruction Fire Missions. Destruction fire missions involve deliberate, accurate gunfire, normally employing one gun against each target. The major part of this task will be accomplished during advance force operations, if such operations are conducted, and will be continued on the day of the landing prior to commencement of scheduled neutralization fire.

Destruction fire missions are executed to destroy any selected targets, most of which will be included in detailed naval and LF requirements submitted to the CATF.

In any operation, some enemy installations are not susceptible to early discovery by own or friendly forces. Some of these installations will be revealed when they open fire or are stripped of concealment. The probability of discovering such targets will be considered in prescribing allowances of time and ammunition.

Destruction fire missions are both expensive in ammunition and time consumed; however, to accomplish them as economically as possible:

1. The target must be under observation by a qualified spotter who is on board or in communication with the firing ship.
2. The firing must be conducted at the shortest range feasible, consistent with safety considerations.
3. If guaranteed destruction of a target is required, it should be engaged by direct fire. Destruction of small targets can seldom be guaranteed by indirect fire, unless a disproportionate quantity of ammunition is available and considerable time is allocated to the mission.
4. The firing must be conducted deliberately with the greatest accuracy possible.
5. Ballistic and arbitrary corrections must be determined and applied for the guns in use.
6. For indirect fire, the relative position of the ship and target must be determined as accurately as possible and correct information introduced into the control equipment.
7. The ammunition used must be capable of destroying the target.

The individual firing ship must ascertain the actual target location, damage inflicted upon the target, and ammunition expended so that a damage assessment can be reported to higher echelons. In this way, the target list can be kept current.

2.8.2 Scheduled Neutralization Missions. Neutralization fire is fire that is delivered to render the target ineffective or unusable. Barrage fire is fire that is designed to fill a volume of space or area rather than aimed specifically at a given target.

For successful accomplishment of these missions, the commanding officer of an individual fire support ship must consider:

2.8.2.1 System of Prearranged Correction. Prior to firing scheduled neutralization fire, a system of correction will be prepared and rehearsed to effectively cover the area. The movement of the firing ship must be taken into account. In many instances, it will be advantageous for the fall of shot to cover the assigned target

areas in an unpredictable manner so that enemy personnel cannot anticipate the planned system of impacts.

2.8.2.2 Thorough Coverage of Target Areas.

Coverage assigned individual ships requires that a portion of the impacts fall outside these areas to ensure fringe areas are covered. When the shore line is a target area boundary, a number of water impacts must occur to cover the beach area properly.

2.8.2.3 Ensuring Desired Area Coverage. It is advantageous where practicable to open fire on a specific point, using an observer to spot initial salvos, and thereby ensuring desired area coverage.

2.8.2.4 Changing Technique of Delivery. When practicable, fire will be commenced with direct fire on the point of aim referred to above. However, in all cases the ship must be prepared to shift to indirect fire when the target area becomes obscured by the smoke and dust resulting from impacts.

2.8.2.5 Changing Volume and Rate of Fire. The higher the rate of fire, the greater will be the neutralization effect attained with the same ammunition expenditure. After initial neutralization, however, a slower rate of fire will maintain the same degree of neutralization. Therefore, when firing neutralization fire for a specified time, it usually is desirable to use a high volume and rate of fire initially, then to reduce the volume and rate, and finally to increase the volume and rate again just before ceasing fire in the area.

2.8.2.6 Capability of Ammunition Available. To achieve neutralization with a given projectile-fuze-charge combination, the commanding officer considers the capability of ammunition available.

2.8.2.7 Timing. For maximum effectiveness and safety of friendly forces, it is essential that scheduled fire be commenced, lifted, or shifted to the flanks exactly on time.

2.8.2.8 Terrain. If no intelligence exists, the effect of terrain features must be studied to determine the likely positions of enemy installations and forces. The majority of fire will be directed at those areas and a lesser amount of fire directed at unlikely places for enemy positions, such as water or swampy areas.

2.8.3 Support of Mine Warfare Operations. Enemy batteries that threaten own forces engaged in mine warfare operations must be destroyed or neutralized. The primary duties of NGFS ships assigned to support and protect mine warfare ships/helos are to:

1. Support mine warfare ships/helicopters by counterfire
2. Provide antiaircraft protection of mine warfare ships/helicopters
3. Attack targets of opportunity.

2.8.4 Support of Reconnaissance and Demolition Operations. This support consists of fire delivered upon known enemy targets and areas adjacent to the area of the reconnaissance and demolition operations. It may consist of planned fire, the delivery of which is integrated into the supported operation or carried out upon call by the supported unit; it may consist solely of counterfire upon active enemy batteries and small arms installations firing upon the reconnaissance and demolition unit; or it may consist of a combination of planned fire and counterfire.

The primary functions of NGFS ships that are assigned to support and protect reconnaissance and demolition operations are to provide:

1. Close supporting fires — fires that are delivered to deny the use of beach and adjacent flanking areas. Ships also maintain instant readiness to lay down a covering smoke screen of white phosphorous along the beach when called for by the commander of the supported unit.
2. Deep supporting fires — fires that are delivered for scheduled neutralization of areas immediately beyond those covered by close supporting fires. Counterfire is delivered, as needed, for protection. Ships are prepared to screen active enemy emplacements with smoke in the event that counterfire is not immediately effective.

2.8.5 Reconnaissance by Naval Gunfire. A program of progressive stripping of defenses will be devised. One method is to begin with heavy air strikes out of reach of antiaircraft fire, followed successively by long-range gunfire, lower and more accurate air strikes, closer-range gunfire, and pinpoint air strikes and gunfire. Photographs must be taken constantly for assessment of damage and discovery of new targets beneath stripped camouflage.

Effective use of NGF to disclose enemy positions requires:

1. Knowledge of the characteristics of ammunition.
2. Dispersal of the fall shot to cover a large area.

3. Observation of the fall of shot by one or more agencies to detect any target disclosed before the enemy has an opportunity to conceal or move the target. If the nature of the target warrants, it will be taken under fire immediately after disclosure.
4. Reporting all targets disclosed to higher echelons, with description, location and damage assessed.

2.8.6 Other Pre-D-Day Fire

2.8.6.1 Isolation of the Objective Area. Normally, isolation will be accomplished by planning fire on routes of approach, supply, reinforcement, and other lines of communication. It is designed to prevent or reduce the reinforcement, resupply, and/or disengagement of the enemy forces in the objective area.

2.8.6.2 Suppression Fire. Such fire is executed to deny the enemy use of selected weapons systems for a specific period of time so as to permit freedom of movement of friendly forces.

2.8.6.3 Harassment Fire. Such fire consists of fire on areas known or suspected to be occupied by enemy troops. The fire is of less intensity than neutralization fire and is designed to inflict losses, disrupt organization, disturb enemy troops, curtail movement, and lower morale. It normally is delivered intermittently during darkness, but also may be employed during daylight.

2.8.6.4 Opportunity Fire. This fire is delivered, without any formal planning or LF requests, on rewarding targets which are newly discovered or of a transitory nature. Such targets may present themselves to the firing ship at any time and will be taken under attack.

2.8.6.5 Support of Subsidiary Operations. To provide adequate NGFS for subsidiary operations and give realism to demonstrations, sufficient fire support ships and ammunition will be allocated. Subsidiary operations may take place during the preparation of the objective or later. The operations may be conducted within or outside of the objective area.

2.9 LANDING (D-DAY)

This fire, normally scheduled, is delivered during the landing of assault waves and the establishment of a limited beachhead.

2.9.1 Destruction or Neutralization. Fire delivered to destroy or neutralize all remaining known or suspected enemy weapons or weapon positions capable of delivering either direct or indirect fire on the landing

beaches or on the assault waves. It is required to cover the formation of the assault waves and their movement from the transport area to the line of departure.

2.9.2 Landing Beach/Zone Preparation. The delivery of a large volume of intense fire on the landing beaches and immediately adjacent areas may be required. Where airborne or helicopterborne forces are used, preparation fire may be delivered in the drop or landing zone, may include SEAD fires, and coordinated with the movement of aircraft to the zone.

The delivery of this fire is coordinated with the actual movement of the boat waves from the line of departure to the beach. Firing begins about the time the first assault wave crosses the line of departure and continues until the wave reaches the limit of safety (when the proximity of the leading assault wave to the beach requires that gunfire support be shifted inland). Minimum safe distances of burst from own forces are contained in paragraphs 2.5.5.1 and 2.5.5.2. Coordination of landing beach preparation fire with CAS may require lifting the former prior to the time the leading assault wave reaches the limit of safety. The scheduled times may be delayed because the leading waves of assault craft may not arrive on the beaches at exactly H-hour. If the time for landing the assault waves is delayed, provision will be required for NGFS to continue preparation and thus compensate for the delay. This is usually accomplished by repeating a previous portion of the schedule of fire, using a reduced ammunition allowance.

When the number of ships capable of gunfire support is limited, preparation fire may have to be restricted in both area coverage and density of fire. Detailed target intelligence, careful planning, and accurate gunnery will be required to ensure adequate neutralization of those areas containing enemy defenses.

2.9.3 Prearranged Close Supporting Fire. Prearranged fire is scheduled with relation to the expected rate of advance of the landing force, in order to provide support until the SFCP are established ashore. These fires are for the protection of assault units and cover the initial landing and deployment.

After the first assault wave has reached the limit of safety, the fire normally commences at the beach line or a few yards inland and is moved inland and to the flanks of the landing beaches in coordination with the movement of the boat waves to the beach. It continues to move ahead of and to the flanks of the LF after troops have debarked from the landing craft. The fire must be lifted in accordance with the movement of the

first assault wave while the LF is waterborne/helicopterborne, and with the movement of the front lines after landing force is ashore. Planned times for lifting the fire normally are based on the estimated rate of advance of the landing force.

Since the duration of fire on each neutralization target area is based primarily upon an expected LF rate of advance, provisions must be made for lifting or repeating fire to conform to the actual rate of advance.

When NGFS available for prearranged close supporting fire is limited, the area to be covered and/or the intensity of fire may have to be reduced. In this circumstance, close supporting fire will be scheduled only on these areas containing enemy defenses capable of interfering with the ship-to-shore movement and initial assault. Prearranged neutralization fire to be fired on call will be planned for other areas such as unoccupied defense positions and key terrain features which might be occupied by the enemy.

2.9.4 Prearranged Deep Supporting Fire.

Fire designed to destroy or neutralize targets away from the immediate vicinity of friendly forces in which it is known or suspected that enemy troops or installations are located. The fire is scheduled in relation to time of day, elapsed time, specific event, or LF request. Observation of this fire is desirable but not absolutely necessary. It does not follow a set pattern, but provides a random dispersal of the fall of shot throughout the neutralization area. Deep supporting fire is delivered concurrently with the fire described in paragraphs 2.9.1 through 2.9.3. Such fires are usually of less intensity than those required for neutralization. When deep support fires are scheduled, the limited means available may well cause these targets to be placed in an on-call category. These target areas are assigned a target number and specified amount of ammunition.

2.9.5 Isolation of the Landing Area. Isolation of the landing area is accomplished immediately prior to and during the landing. It is similar in nature to the isolation of the objective area (outlined in paragraph 2.8.6.1) but is normally planned closer to the landing beaches.

2.10 AFTER LANDING (POST-H-HOUR)

The principal tasks of gunfire support forces after the landing has been made are based upon requests of the landing force.

2.10.1 Fire in Support of the Landing Force Movement. Fire requested by the LF is intended to assist the force's efforts on the ground. Such fires are similar in nature to those delivered by LF artillery. As troop movement inland extends beyond the range of NGF and LF artillery becomes firmly established ashore, NGF is assigned other missions and is used to augment the artillery.

2.10.1.1 Preparation Fire. The preparation is an attack by artillery and NGF of hostile defensive positions through the delivery of planned fires prior to, during, and after the attacking echelons have crossed the line of departure. It is coordinated with the scheme of maneuver and designed to destroy or neutralize enemy installations likely to interfere with the attack, gain superiority over hostile counterfire means, disrupt hostile command and communication systems, and isolate the battle area.

2.10.1.2 Fire in Support of the Attack. After each ground attack commences, direct support ships fire on targets as called for by LF spotting agencies. Ships also may fire on targets of opportunity if such targets are cleared with the supported unit. General support ships continue prearranged deep support missions but are prepared to fire missions on call as directed or to attack targets of opportunity.

2.10.1.3 Protective Fire. This fire is delivered by support ships during the period of consolidation after the capture of a position.

2.10.2 Defensive Fire. Fire delivered by direct and general support ships to protect the LF from enemy attacks.

2.10.2.1 Countermechanized Defensive Fire. This fire consists of targets planned on routes of approach which logically would be used by enemy mechanized forces. Normally, it is scheduled for delivery on call of the supported LF. The fire is planned by the LF and included in its detailed requirements.

The countermechanized plan normally will contain an overlay showing the prearranged targets and instructions to the fire support ships. The principles outlined in paragraph 3.5.8 are applicable to this fire. Executing a countermechanized plan requires consideration of:

1. Need for good communications and an understanding of the plan
2. Demand for speed and accuracy of fire

3. Readiness to shift fire to follow target movement.

2.10.2.2 Other Defensive Fires. These are prearranged on routes of approach that logically would be used by attacking enemy forces.

2.10.3 Harassing Fire. Fire is normally planned for delivery during the hours of darkness after the landing has been made. It is delivered against suspected enemy troop locations and/or reorganization and to lower morale by the threat of losses. Fire also may include illumination fire.

2.10.4 Interdiction Fire. Fires delivered on selected terrain for the purpose of denying the enemy the unrestricted use of these areas. Targets considered for interdiction fire include road junctions, bridges, stream and river crossing sites, and defiles.

2.10.5 Illumination Fire. Firing illumination must be carefully coordinated with adjacent units to avoid disclosure of friendly units. Fire is provided by NGF for the following main purposes and planned and called for by supported landing force units:

1. To protect own front lines against hostile night operations. This fire aids in surveillance of the battlefield.
2. To permit adjustment of observed fire during hours of darkness. Illumination fire may be combined with any of the other types of fire previously described.
3. To assist own landing force operations, such as night attacks, front line relief, occupation of new positions, and so forth. Care must be exercised to ensure that the impact of the illumination cannister does not endanger other nearby friendly forces.

2.10.6 Opportunity Fire. Provision will be made in ammunition allotment for the attack of opportunity targets after the landing. Targets of opportunity are transitory and will be taken under fire immediately upon discovery, consistent with the supporting mission to which the ship is assigned and the safety of the LF. Direct support ships will not initiate such fire without clearance from the supported LF unit. If direct support ships discover targets of opportunity and are not cleared to fire, the location and description of the target will be reported to the naval or LF commander exercising coordination

of supporting arms for assignment to a ship, aircraft, artillery unit not otherwise engaged.

2.10.7 Suppression of Enemy Air Defenses. Provision will be made for prearranged or call fire on known or suspected air defense positions that may affect friendly air operations during and immediately prior to such operations.

2.10.8 Shift From Known Point Missions. Observed missions conducted for the purpose of accurately locating a point for future reference and to enable the firing ship to accurately determine arbitrary corrections to hit under existing conditions.

If the purpose is to locate a known point for future use, the target selected will be identifiable on the ground by the spotter, but may not be identifiable on the chart. The spotter may then use this point, which may be an isolated tree, as a reference for all targets in the immediate area. If the purpose is to determine arbitrary corrections to hit, the target selected must be identifiable on the ground by the spotter and on the map/chart by the firing ship. A road junction may be selected for this purpose. In either case, firing normally will cease when a hit or near miss is obtained.

The corrected position of the known point must be plotted so that it can be used as a known point for future firings. Usually, the shore fire control party will designate each such point by a number.

2.10.9 Massing of Fire. The purpose of massed fire is to bring a large volume of fire exceeding that available from a single ship on an area or on a particular target. Massed fire may be needed to repel a heavy attack by infantry or armor, or it may be used as a surprise volume of fire.

Massing of NGF usually is not necessary, since each support ship is capable of a considerable volume of fire. When massed fire is required, availability of additional ships must be considered. Ships in direct support of other forces normally will not be diverted from their primary mission if general support ships or relief support ships are available. An appropriate request is made for additional fire to the regiment or division by the unit of the LF concerned. In the early stages of a landing, requests will be resolved in the SACC aboard the ATF or appropriate attack group command ship.

Adequate communications with centralized command are essential for proper coordination and control of massed firing. Rapid shifting to a spotting frequency or relay of information between ships on

tactical or administrative frequencies may be necessary. Ships that have limited radio equipment and must remain on other circuits have authority to use the naval gunfire control overload net for massed fire.

The size and nature of the target will determine the distribution of fire. Normally, the number of guns and rates of fire will be specified by the controlling agency. Massing of fire to repel an infantry or armored attack may be necessary after a support ship has already taken the attack under fire. Additional ships establish communications and adjust as rapidly as possible to supplement the existing fire.

A special form of massed fire uses "time on target," by which the time is specified for the arrival of the initial salvos at the target. Communications and control are firmly established prior to execution. This type of fire produces a large volume of fire suddenly and without warning. It is essential that all projectiles in the initial salvo from all ships arrive at the time stipulated. This prevents the enemy from being forewarned and taking cover or dispersing and thus obtains the greatest possible demoralizing effect.

2.11 NAVAL GUNFIRE SUPPORT MISSIONS

There are two tactical missions that may be assigned naval gunfire support ships when in support of the LF, DS, and GS. During planning, the CLF submits requests to CATF for certain types of ships for specific tactical missions; CATF then organizes his naval forces and assigns ships in a manner that will best support the landing force scheme of maneuver.

2.11.1 Direct Support. In this relationship, the ship delivers prearranged and call fires for the supported unit. Each assault battalion is normally assigned one DS ship.

2.11.2 General Support. The fires of a ship in general support are conducted as directed by the naval gunfire officer (naval gunfire liaison officer) of the unit being supported. The primary purpose of assigning a GS mission to a ship is to provide additional fire support to commanders at echelons (regiment, division) above the battalion without requesting it from higher echelons. Units of regimental size or larger, not in reserve, are assigned one or more GS ships.

2.12 EMPLOYMENT OF RADAR BEACON

The radar beacon is a lightweight portable radar transponder used to aid in delivery of accurate NGF under all conditions of visibility. Emplaced and operated by a small team usually attached to the battalion

shore fire control party, the beacon provides an electronic reference point ashore from which a fire support ship can fix its actual or relative position. ANGLICO also provides naval gunfire radar beacon support to U.S. Army and Allied units during joint or combined operations. Use of the radar beacon can practically eliminate the navigation error element from initial salvo error. Procedures and techniques of adjusting fire on shore targets remain unchanged whether or not the beacon is employed.

2.12.1 Command. The CATF is responsible for determining the requirement for radar beacons. The CLF is responsible for the control, placement, operation, and upkeep of the radar beacons assigned to the LF. Liaison is established between the ATF and the LF prior to an operation to ensure that the capabilities, limitations, and employment of radar beacon teams are mutually understood.

2.12.2 Concept of Employment. The radar beacon is operated in the field by a small radar beacon team (usually two or three men) attached to the battalion shore fire control party or to a reconnaissance unit. It is located in accordance with the amphibious operation order or as directed by the CLF. If the location is preplanned, the CLF advises CATF on beacon placement to ensure coordination with the scheme of maneuver. The beacon location is then specified in the NGF section of the operation order. If the beacon location is not preplanned, the shore fire control party will coordinate emplacement of the beacon with SACC and FFCC.

2.12.3 Capabilities and Limitations. The radar beacon UPN-32 requires no field maintenance except for changing batteries. It weighs approximately 30 pounds including battery, warms up in 30 seconds, and is very easy to operate. The beacon signal can be varied to provide for identification and differentiation; ten separate codes are available (only one code is transmitted at a time, but the code can be quickly changed in the field). Frequencies on the radar beacon are preset prior to use in the field. The beacon is capable of serving up to five ships at a time. It is limited to line-of-sight range.

The radar beacon PPN-19 requires no field maintenance except for changing batteries. It weighs less than 18 pounds, warms up in 30 seconds, and is very easy to operate. The beacon signal can be varied to provide for identification and differentiation; seven separate codes are available (only one code is transmitted at a time, but the code can be quickly changed in the field). Frequencies on the radar beacon are preset prior to use in the field. The beacon is capable of serving up to seven ships at a time. It is limited to line-of-sight range.

2.12.4 Fire Control Methods. There are three methods which may be employed using a radar beacon: method ALFA, method ALFA modified, and method BRAVO. The ship selects the best method, considering ship position, target position, and whether the beacon's position is accurately known.

2.12.4.1 Method ALFA. This method may be used when the exact location of the beacon is known (OPORD or beacon team information). In this method, the beacon is used simply as a navigation aid to determine ship's position.

2.12.4.2 Method ALFA Modified. This method may be used when the exact location of the beacon is unknown, and when combat grid charts are not available. The target location is given in polar coordinates from the beacon. The ship plots beacon, ship's relative position and target relative position to engage the target.

2.12.4.3 Method BRAVO. This method may be used whether or not beacon location is accurately known. Target location is expressed in polar coordinates from the beacon. Beacon location is the point of aim, and offsets are introduced into the computer to lay the gun on target.

2.12.5 Employment Afloat (Beacon Afloat)

2.12.5.1 SEAL Operations. The radar beacon may be used during underwater operations for offshore spotting.

2.12.5.2 Ship-To-Shore Movement. With a radar beacon mounted in a boat or an amphibious tractor of the first assault wave or other designated wave(s) progress of the wave can be tracked and controlled.

2.12.6 Employment Ashore

2.12.6.1 Navy

2.12.6.1.1 Advance Force Operations. To establish a reference point for gunfire support ships during both advance force and subsequent operations, the radar beacon may be established ashore by reconnaissance teams.

2.12.6.1.2 Ship's NGF Teams. Tactical employment of the radar beacon is the same as that for LF teams.

2.12.6.2 Landing Force

2.12.6.2.1 Landing and Assault. The radar beacon(s) accompanying the leading assault wave provides an accurate means of controlling a rolling barrage in

front of the wave, from the start of the barrage until landing. Shifting of fire subsequent to H-hour must continue to be based upon the contemplated rate of advance, reports of tactical air observers, and other front line reports origination from landing force units. The force radar beacon teams, landing in an early wave, will establish beacon stations off the flanks of the beaches. If accurate charts are available, these beacons will be located initially by inspection or rapid survey. As time and the situation permit, a more accurate survey is accomplished. If charts are not available, one beacon may be established and arbitrary coordinates assigned. Other beacons will be tied in relation to this beacon. One of the more rapid methods of tying in other beacons is for a ship to take simultaneous fixes on two beacons, the position of one being accurately known or intended for use as a base point. From the location of the reference beacon, the relative location of the other beacon(s) is determined, thus providing a basis for an observed fire chart.

2.12.6.2.2 Additional Operations Ashore. As the beachhead is being established, ground reconnaissance will be conducted to determine the most desirable radar beacon sites and verify the desirability of preselected sites. Displacement usually will be deliberate. The new location will be surveyed-in prior to displacement, when possible.

2.12.7 Special Operations. Radar beacons are utilized as appropriate for the delivery of NGF in support of amphibious raids, demonstrations, coast-watching activities, and patrolling. The beacons also may be used for guidance of patrols when no accurate maps are available.

2.12.7.1 Airborne. If the drop zone is within naval gunfire range, beacon teams will drop and set up beacons that will be used for protective fire. Early dropping of the beacons is essential for maximum use of close-in protective fire during the vulnerable period when the LF is collecting equipment, assembling, and preparing for further action. Special attention will be given to packaging and dropping the beacons and their respective teams. If the drop is inland, consideration also must be given to communication equipment necessary to tie in the beacons to the ships and to the beacon's line-of-sight limitations.

2.12.7.2 Beach Evacuation. In evacuation of United States and other nationals and forces for redeployment, beacons will be left on the beach until evacuation is completed, if the situation requires. A prearranged destruction and/or beacon withdrawal plan will be necessary to prevent the beacons from falling into enemy hands. Boated beacons will be used after the

beach has been evacuated to keep the rolling naval gunfire barrage close to the last elements off the beach. Additional boated beacons will be used for offshore spotting.

2.12.7.3 Jungle. In the jungle, the radar beacon will be limited in its employment to the landing beaches, along the coast, to the flanks of the landing beaches, and inland to commanding terrain that can be cleared sufficiently for proper beacon electronic operation. The mobility of the teams will be greatly reduced, and it will be difficult to survey in beach positions.

2.13 EMPLOYMENT OF MK 86 GUNFIRE CONTROL SYSTEM

Mk 86 GFCs equipped ships have unique capabilities when compared to other GFCs. Mk 86 GFC operators can load up to eight preselected target locations into the NTDS or Mk 86 GFC programs.

This important capability provides tactical utility in NGFS by reducing response time to:

1. Counterbattery fire
2. Suppression fire in support of landing force advances, maneuvers, or withdrawals
3. Prearranged fire missions.

2.13.1 Concept of Employment. Ships that employ the Mk 86 gunfire control system provide CATF a unique added dimension for conducting NGF. Dependent upon the size, scope, and objective of the amphibious operation, these ships are made available for the assault phase.

2.13.2 Mk 86 GFCs Grid-Navigation Reference Mode. The methods of using the NAVREF mode are very similar to the beacon methods; however, the beacon is replaced by a small geographical feature that is tracked by one on the Mk 86 tracking channels. This geographical feature, depending on whether or not its location is accurately known, is used to determine a ship's position (METHOD ALFA) or used as a target

reference point and the ship offsets the aim point to the target (METHOD BRAVO).

2.13.3 Mk 86 GFCs Prearranged Fire. The grid coordinates of up to eight prearranged targets can be entered into the NTDS/Mk 86 computer systems. When directed, the control officer can recall the grid coordinates of one of the targets and assign the target to one of the gun control consoles, that can engage the target using both guns.

2.13.4 Mk 86 GFCs Simultaneous Engagement of Targets. There are two different methods of engaging more than one target simultaneously with the primary difference being the number of spotters and communications circuits.

2.13.4.1 Indirect Fire — One Communication Circuit. This requires the assignment of one gun mount to each gun control console. Upon receipt of the first fire mission, both gun mounts engage the target; when the SFCP reports "new target" and gives the spot to the new target, the ship maintains fire on the original with one gun and shifts to the new target with the second gun mount and gun control console. Both guns are spotted on by the SFCP and the individual gun control consoles.

The SFCP will precede all communications concerning each target using the abbreviated target number. When fire is complete on either target, or a target is destroyed, he will pass, "End of Mission, Target Number ____ ." Both guns will engage the remaining target until end of mission.

2.13.4.2 Indirect Fire — Two Communication Circuits. This requires the assignment of one gun mount to each gun control console. Upon receipt of the first fire mission, both gun mounts engage the target; when a second spotter on the second communication circuit reports a second fire mission, one gun and gun control console is assigned to fire the second mission. Note: All spots are backed out of the gun control console assigned to the second mission. The two spotters and the two gun control consoles fire the two missions completely independent of each other. When one target is destroyed, both guns are assigned to the remaining target.

CHAPTER 3

Planning

3.1 SCOPE

Naval gunfire support planning begins upon receipt of directives concerning a forthcoming operation. The commander provides guidance and instructions to his staff. This guidance may take a variety of forms, including planning directives, memorandums, or outline plans; or it may be announced at informal staff conferences or briefings. The guidance is the commander's assistance to his staff in preparing and revising their estimates.

3.1.1 Planning Guidance. Landing force gunfire planners will rely on the commander's guidance to ensure the integration of the gunfire plan with the landing, scheme of maneuver, and concept of operations ashore. The commander's guidance normally will include, but not be limited to, the following:

1. An announcement or affirmation of commander's policies.
2. Commander's analysis of the overall mission.
3. The general plan for using nuclear weapons or chemical agents.
4. Assumptions that are necessary because of lack of positive information.
5. Broad and general courses of action which the commander particularly desires to be considered.
6. Previous decisions as to related operations. The commander's initial guidance is usually incomplete, but is developed and expanded as more information is received.

3.1.2 Planning Phases. By an orderly and systematic planning process, the NGFO arrives at a complete NGFS plan that can be understood by all affected naval and LF agencies. The four general phases of NGF planning involve the preparation of:

1. Estimates of supportability
2. Initial or overall NGF requirements
3. Detailed NGF requirements
4. NGFS plans.

Selection of weapons and ammunition in gunfire support planning is described in Appendix C. Overall guidance on the preparation of operations orders are found in FMFM 3-1.

NGFS plans are normally tabs under the fire support plan appendix of the operations annex of the operations plans or orders of the CATF, the CLF, the advance force commander, and the attack group commander, when attack groups are formed. Each plan is designed to provide sufficient information and instructions to the fire support ships to ensure that efficient NGFs will be provided. Tables and forms for computing requirements in ammunition and ships are in Appendix F.

3.1.3 Responsibility. The CATF is responsible for the preparation and execution of the overall NGFS plan. The plan is based on the support requirements of the LF, as represented by the CLF, and on requirements to support naval forces such as mine warfare, SEAL operations, and reconnaissance task groups. The CLF is responsible for determination of LF requirements for NGFS. The CLF determines the troop requirements for NGFS, including the selection of targets to be destroyed in the pre-assault operations, those to be fired on in support of troops, and the timing of these fires. The CLF presents his requirements to the CATF for consolidation with naval requirements.

3.1.4 Coordination. In order to provide unity of effort at all levels of command and prevent duplication, close coordination between naval commands and the LF

is required in planning NGFS. The following commanders are particularly concerned:

1. CATF
2. Attack group commander (when an attack group is used)
3. Advance force commander
4. CLF
5. Landing group commander (when a landing group is used)
6. TAO
7. Tactical air control group (unit) (element) commander.

The timely interchange of information between CATF and CLF is necessary if the final NGF plan is to reflect optimum support for the landing force. A planning schedule indicating deadlines for the submission of certain requirements will be promulgated by CATF early in the planning for an operation. When attack and landing groups are formed, the attack group commander translates D-day and post-D-day requirements submitted by the landing group commander into a gunfire support plan to be executed by the fire support unit that is a part of his attack group. The attack group commander is responsible for the execution of the gunfire support plan in his area of operations; however, he receives CATF definitive guidance during the planning phase.

3.1.5 Requirements. NGFS plans must support the LF scheme of maneuver and the operations of naval units. Estimates of overall requirements are submitted by the naval and LF commanders as soon as practicable after the directive for the operation is received (see Figure 3-1). These estimates enable the CATF to determine the general extent of fire support required. They form the basis for his decision concerning the adequacy of fire support means provided him by higher authority. When NGFS means have been balanced with naval and LF requirements, the CATF makes a tentative allocation of forces so that detailed planning may begin. This may take the form of a tentative task organization.

Detailed requirements are determined after the details of the LF scheme of maneuver and supporting naval operations have been established. A final allocation of fire support ships is made and detailed NGFS plans are prepared based on the established detailed requirements. They provide the basis for preparing de-

tailed NGFS plans. To aid the planner in preparing the overall and detailed requirements, sample forms are included in Appendix F.

3.1.6 Flexibility. The NGFS plan is based on information available during the planning phase and will contain many estimates. Additional information on enemy installations, forces, capabilities, and so forth, will be provided as it becomes available. The plan should be written so that changes in schedules of fire, targets scheduled for destruction, duration of pre-D-day operations, delay of H-hour, or other entries that require modification of the plan may be effected expeditiously.

3.1.7 Alternate Plan. In addition to the preferred NGFS plan, one or more alternate plans are required. These plans normally are based on the use of an alternate landing area and/or a radical change in order or timing of the landing. The same considerations are applicable in the preparation of the alternate plan as in the preferred plan.

The alternate plan will follow as closely as possible the preferred NGFS plan in task organization, assignment of direct and general fire support ships, and allocation of radio frequencies. The steps in preparing the alternate NGFS plan are the same as those previously described. However, additional adjustments to the detailed requirements may be found necessary and will require a different allocation of fire support means.

3.1.8 Rehearsal Plan. The NGF annex to the rehearsal plan is a duplication of the annex contained in the main operation order with regard to task organization and communications. Its purpose is to test the task organization, communications, and the timing of prearranged fire.

A prerehearsal briefing and a postrehearsal critique will be held. It is desirable that gunnery and CIC personnel assigned to fire support ships attend both. Direct liaison will be established between CIC personnel and LF liaison officers of the LF/NGF organization.

3.1.9 Special Amphibious Operations

3.1.9.1 Landings in Reduced Visibility. The preparation of the NGFS plan for night landings or landings under conditions of reduced visibility is similar to that described in preceding paragraphs, except for the following considerations:

1. These landings usually are intended to achieve various degrees of surprise. This may require

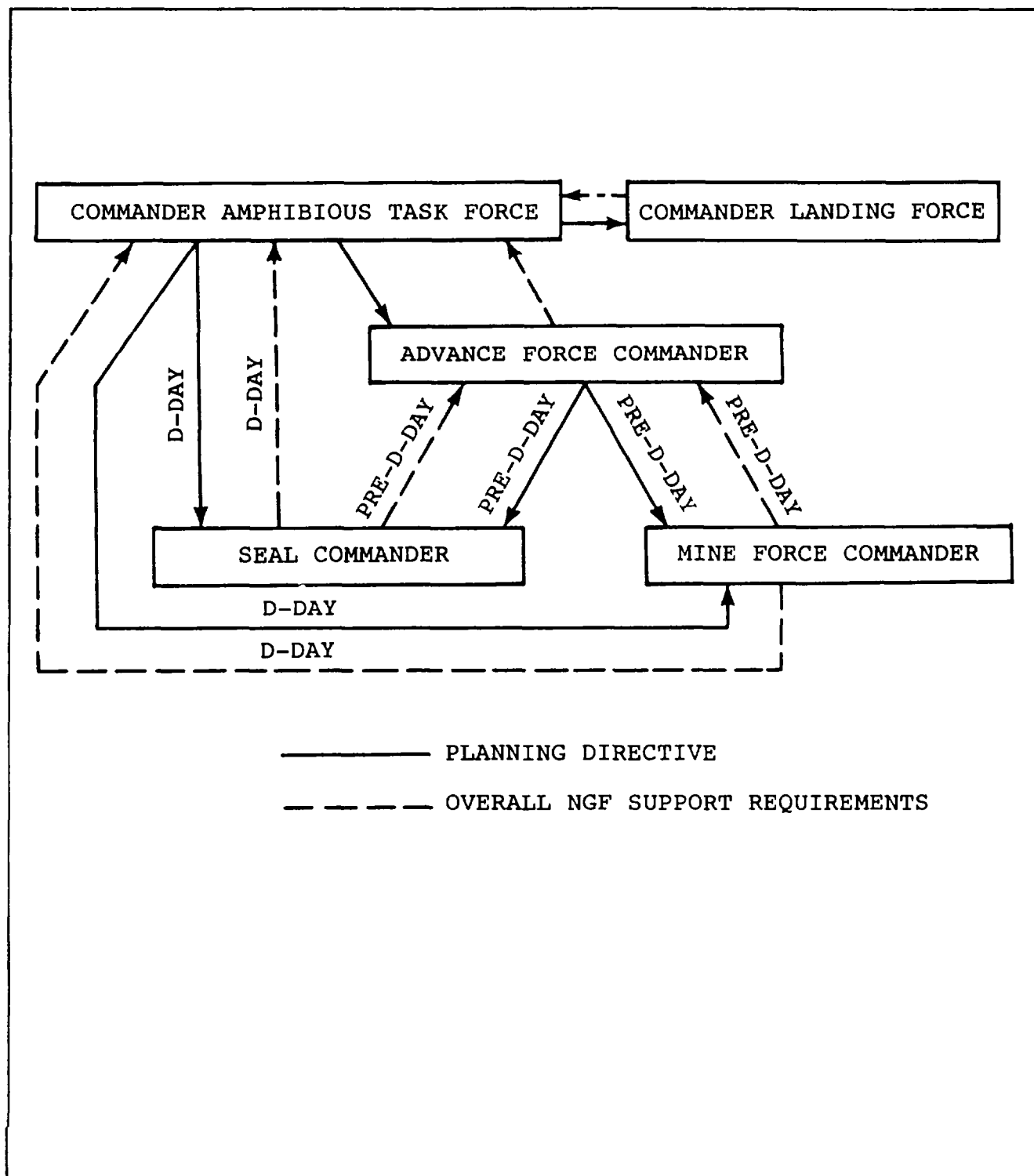


Figure 3-1. Flow Chart for Overall Naval Gunfire Requirements

that the landing site or area not be disclosed by prelanding NGF.

2. The number of illuminating projectiles required usually will be considerably greater than for normal operations.
3. Navigation may be much more difficult for a landing of this type, making unobserved fire less accurate. Use of radar beacons or ships with the Mk 86 gunfire control system will assist in overcoming this limitation.
4. Normally, air spot will not be available for operations of this type. This will force greater reliance on ship spotters and shore spotter, while most fire will be "unobserved."

3.1.9.2 Helicopterborne Assault. Planning considerations peculiar to helicopterborne operations are:

3.1.9.2.1 Planning for Fire Support. The speed with which ship-to-shore movements employing helicopters are executed demands detailed, exacting plans for fire support. Shifting or cessation of fire is executed on a strict basis in relation to the leading helicopter wave. Fire support ships are notified by the SACC of the position of the leading wave in relation to control points. Each ship ceases or shifts fire from its assigned target areas within the approach and retirement lanes in sufficient time to ensure against damage to helicopters. Time of flight of the projectile and speed of the helicopter wave are considered in determining when to cease firing.

3.1.9.2.2 Assault Against Deep Objectives. If the assault is against deep objectives, destroyers may have insufficient range. In determining NGFS ship requirements for helicopter operations, the scheme of maneuver ashore and future objectives are ascertained, so that the requirements may reflect needs throughout the operation.

3.1.9.2.3 Vulnerability of the Force. The vulnerability of the helicopterborne force while effecting the landing is such that extremely dense fire support must be available. Offensive air support and NGF may be the only arms at hand during this period. NGF requirements reflect the anticipated offensive air support available, both in quantity and location. Protective fire on a 360° perimeter may demand additional NGF control personnel and equipment.

3.1.9.2.4 Helicopter Lift Limitations. Limitations that deprive the helicopterborne force of certain fire support means, for example, heavy artillery, may make

it necessary to provide heavy fire support by aircraft and NGF; however, if the helicopter operation is conducted in conjunction with a surface landing, long-range artillery may be able to provide some heavy support.

3.1.9.2.5 Neutralizing the Assault Area. The geographic area involved in helicopterborne operations may require prohibitively large quantities of ammunition and ships to neutralize the approach and retirement lanes and defended landing zones, unless nuclear weapons are used. Scheduled fire is placed only on areas known to contain weapons and personnel that must be neutralized in order to execute the landing. Great reliance is placed on air spotters to discover and take under fire unforeseen targets that threaten the success of the landing. Counterbattery targets and targets of opportunity in the approach and retirement lanes must be given top priority. There will be no restriction of fire on these targets prior to the assault. Permission, however, must be obtained to fire into the approach or retirement lanes after the assault has commenced.

3.1.9.2.6 Helicopter Approach Retirement Routes. If the maximum effectiveness of NGFS is to be obtained, helicopter approach and retirement routes used during a specific time period must be kept to a minimum. Approach and retirement lanes will be planned, if possible, to avoid landing beaches in order to allow for unrestricted beach preparation. The NGFO examines the operations plan and determines, in view of time and space factors, what degree of NGFS can be expected if various alternate approach and retirement routes and landing zones are selected during the ship-to-shore movement. He advises the supported commander (or higher echelon) of what such changes will mean in the execution of NGFS.

3.1.9.2.7 Need for Continuous Fire Support. When possible, NGFS ships are placed on each side of helicopter approach and retirement routes, in order to permit fire support without interrupting helicopter operations. It may be necessary to change to alternate approach or retirement routes during the operation. To permit continuous fire support regardless of changing situations, a system of flight restrictions and NGF trajectory limitations may be invoked. Such a requirement may be met by the use of airspace coordination areas along approach and retirement routes. Figure 3-2 illustrates such a system. By using trajectory charts in pertinent range tables, the NGFO ascertains the areas in which each fire support is able to place fire and thereby has an immediate guide for assigning ships to attack targets. For additional information on airspace coordination areas, see paragraph 7.2.8.3.2(d).

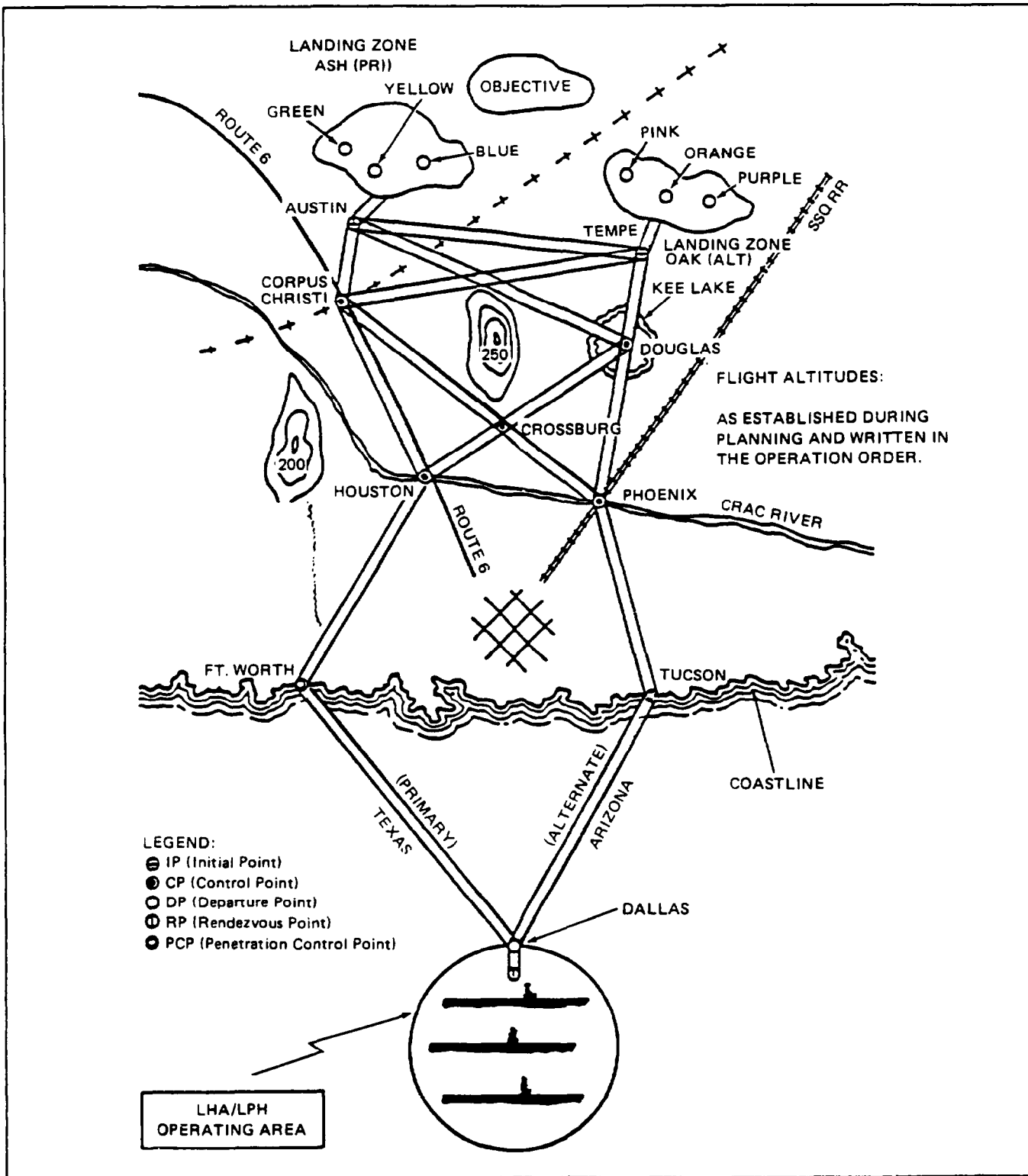


Figure 3-2. Trajectory Limitations Across Helicopter Approach Routes

3.1.9.3 Subsidiary Operations. These operations, including LF reconnaissance operations, may be conducted either simultaneously with the main landing or at another time. The planning for the preparation of the NGFS plan, therefore, follows the basic principles described. Each subsidiary or LF reconnaissance operation will require individual planning.

3.1.9.4 Reembarkation From a Hostile Shore. When reembarkation from a hostile shore is planned, NGFS factors will prevail. The NGFS plan first must provide for support of forces ashore and then for prearranged fire to isolate the beachhead or main line of resistance of friendly forces as the reembarkation into landing craft and subsequent movement of friendly forces and equipment from the beachhead to the ships are carried out. Provision also must be made for support of SEAL and mine warfare operations which may take place concurrently with or subsequent to the evacuation or redeployment movement. Postwithdrawal destruction fire may be required to supplement or extend demolition operations. Particular attention will be paid to defensive fire and the integration of NGF with the defensive fire of artillery and LF antiaircraft batteries.

3.1.10 Nuclear and Chemical Defense. Unconventional munitions do not require new fire support planning or coordination agencies, but do require the NGFO to be trained in their tactical and technical aspects and their influence on fire support in general. To arrive at realistic planning data, the NGFO first ascertains the degree of nuclear and chemical support available. Availability means more than mere numbers and yields. It includes:

1. Echelons authorized to employ nuclear and chemical munitions
2. Employment restrictions
3. Safety criteria
4. Characteristics of the munitions available to each delivery arm.

The NGFO determines which known targets are to be subjected to nuclear and chemical attack. Then, knowing the general magnitude of nuclear and chemical support available, how this support will be used, and NGF requirements, the NGFO can determine and integrate nuclear and chemical support with the gunfire support plan. NWP 28, Nuclear Warfare Operations (U), and NWP 36, Armed Forces Doctrine for Chemical Weapons Employment and Defense, contain details on nuclear defense and chemical de-

fense respectively. See Joint Pub 3-02 for nuclear and chemical defense during amphibious operations.

3.2 INTELLIGENCE

Intelligence is important when planning NGFS, particularly intelligence on profitable NGF targets. Therefore, when planning starts, intelligence must be acquired and studied with care. Most intelligence will be acquired from the N-2 and G-2 sections.

3.2.1 Requirements. Intelligence requirements necessary for preparing NGF plans include:

1. Maps, charts, and photographs
2. Climatological data on visibility, cloud cover, rainfall, snow, and fog
3. General military geography, including:
 - a. Terrain relief, vegetation, critical terrain features, surface material, and communications
 - b. Adjacent islands and landing beaches
 - c. Harbor and port facilities.
4. Air facilities and airfields, including location, characteristics, hangars, workshops, fuel and oil storage, ammunition storage, navigational aids, power and water supply, and defensive installations
5. Transportation (railroads, roads, and waterways)
6. Ground defense forces (order of battle, disposition, defensive installations, and logistics).

3.2.2 Enemy Forces. Information on enemy strength and estimates of enemy capabilities within the objective area exert a strong influence on NGFS planning. The number and mobility of enemy forces that may threaten own forces will affect the amount of NGF required to support the amphibious assault. Organization and ammunition allocation must be designed to meet such threats.

3.2.3 Target Analysis. It is likely in mid to high intensity conflict that potential targets may outnumber the resources needed to detect, locate, and attack them all in the time available. Both the CATF and the CLF must determine which types of targets can most affect the mission and assign them the highest priority for both detection and attack. The precedence may change for different phases and this must be given as guidance to

targeting personnel. Other target analysis which needs to be made during planning and prior to execution includes:

1. Target selection standards — criteria for determining which targets are valid and which require further confirmation. They are used to counter the enemy's deception efforts, such as imitative communications and dummy positions.
2. Ability of fire support to achieve the necessary results on the target.

3.2.4 Sources. During the planning phase, intelligence is provided by the N-2 and the G-2. The amphibious force and LF target intelligence officers (see paragraph 7.3.1) are the points of contact with the N-2 and G-2 for the NGF personnel. Intelligence and intelligence requirements are passed from and to the N-2 and G-2 sections by the target intelligence officer. The requirements are usually expressed as EEIs and OIRs, while intelligence is usually disseminated in photographs and reports from the collection agencies to identify potential targets either directly or by analysis.

Because the EEIs and OIRs cannot completely express the intelligence needs of the NGF personnel, these personnel will also explain their operations and needs directly to the N-2 and G-2. Knowing the needs of the NGF personnel, the N-2s and G-2s can tailor their sections' operations to best support NGF planning.

3.3 NAVAL GUNFIRE PLAN

The NGF plan follows the format established by the JOPS. The plan, with enclosures as required, is published as a tab to the fire support appendix to the operation annex to the operation plan/order. It is largely informational rather than directive. Certain instructions, however, are normally given in the plan. The ATF naval gunfire plan, based on the detailed requirements, is the basis for the landing force plan. The LF NGF plan is prepared and issued to support the LF operation plan. It contains pertinent information pertaining to the tactical use of NGF, and to the shore fire control parties and the regimental NGF liaison teams as appropriate. Information in the CATF plan that is of interest to the naval forces only is not included in the LF plan. The NGF plan for either the landing group or the LF echelon is prepared and submitted by the LF NGFO. The plan is issued at the earliest point; however, as might be expected, the issuance may occur late in the planning. This requires provisions for making last-minute changes and modifications. NGF plans for advance force operations may be included in ad-

vance force operation plans, or as an enclosure to the NGF support tab.

3.4 FORMAT OF NAVAL GUNFIRE PLAN

3.4.1 Basic Plan

3.4.1.1 Task Organization. The task organization for NGF support is presented in the form of tactical arrangements of fire support groups, units and elements, according to tasks assigned. Data pertinent to the tactical subdivision of forces are:

1. Numbers and types of fire support ships available
2. Number, size, and relative location of landing sites
3. Hydrography and terrain features as they affect positioning of ships
4. Scheme of maneuver of supported unit
5. Location and density of enemy targets
6. Direct and general support ship requirements.

3.4.1.2 Paragraph 1, General Situation. Appropriate details of the general situation bearing particularly on aspects of NGFS.

3.4.1.3 Paragraph 2, Mission. Sets forth the missions to be accomplished by the fire support groups.

3.4.1.4 Paragraph 3, Execution. The first subparagraph of this paragraph gives a summary of the overall course of action intended. Included is a subparagraph (coordinating instructions) which contains all information that is applicable to two or more fire support ships, elements, and so forth. Examples of items to be covered in this subparagraph are contained in Appendix D. Subsequent subparagraphs assign specific tasks to each command appearing in the task organization.

3.4.1.5 Paragraph 4, Administration and Logistics. Details initial loading and replacement of ammunition or refers to proper enclosures or appendixes to the plan. Information and instructions on transfer of ammunition at sea also may be included.

3.4.1.6 Paragraph 5, Command and Signal. Details peculiarities of NGF communications and refers to the communication annex and/or the enclosure on NGFS communications.

3.4.2 Sequence and Procedures. The planning sequence and procedures outlined below are typical of those necessary for developing the NGFS plan. The steps are listed in chronological sequence, although circumstances frequently will require deviation from this order.

3.4.2.1 Preparation of Planning Program. Each echelon planning NGFS prepares a planning schedule containing a day-to-day program.

3.4.2.2 Preparation of Estimate of Supportability. Early in the planning phase (normally following receipt of initial planning guidance), NGF staff liaison officers prepare a NGF estimate of supportability. Each proposed course of action is analyzed to determine which can best be supported by NGF. The commander studies the NGF estimate along with other estimates, makes his decision on the preferred course of action, and determines his concept of operations. Samples of factors for consideration in completing the estimate of supportability include: hydrography, terrain, weather, means required, state of training, intelligence estimates, and helicopter-borne support requirements. NGF employment considerations are contained in Appendix C.

3.4.2.3 Preparation for Overall Naval Requirements. Overall naval requirements consist of the ammunition, ships, air spot, radio frequencies, and periods of time necessary to support naval operations; for example, mine warfare, reconnaissance, and SEAL operations.

3.4.2.4 Receipt of Overall Landing Force Requirements. The overall LF requirements consist of the estimated ammunition, ships, spot planes, radio frequencies, and periods of time required to support the scheme of maneuver of the LF. These requirements are preliminary estimates based on the best available intelligence.

3.4.2.5 Consolidation of Overall Naval and LF Requirements. Upon receipt, overall naval and LF requirements are consolidated and examined for feasibility.

3.4.2.6 Comparison of Overall Requirements With Means Available. The consolidated requirements are compared with the forces assigned. If these forces are not sufficient, the CATF requests additional forces from appropriate higher authority.

3.4.2.7 Allocation of NGF Support Means. After approving the consolidated overall requirements,

the CATF makes a tentative allocation of fire support ships, air spot, and radio frequencies.

3.4.2.8 Receipt of Detailed LF Requirements. These requirements reflect changes and additions made necessary by later and more complete information.

3.4.2.9 Preparation of Detailed Naval Requirements. The overall naval requirements are now greatly detailed, taking into consideration the latest intelligence and area studies of the objective area.

3.4.2.10 Consolidation of Detailed Naval and LF Requirements and Comparison With NGF Support Means Available. These detailed requirements are consolidated, examined and then compared with the NGF support means available, in order to determine whether readjustment is necessary.

3.4.2.11 Preparation and Submission of Naval Gunfire Support Tab

3.5 ENCLOSURES AND TABS

The following enclosures and tabs are typical of those found in the basic NGFS plan.

3.5.1 NGFS Operations Overlay. The operations overlay is a graphic representation to scale, of the breakdown of both the land and sea areas as they pertain to NGFS (see Figure 3-3). It depicts targets, target areas, fire support stations, and restricted maneuver areas such as boat lanes. It also shows landing beaches, troop boundaries, control features, helicopter landing zones (LZs), and helicopter approach and retirement lanes. It does not show fire support coordination measures such as coordinated fire lines. This overlay, except for certain naval aspects, is initially prepared by the LF staff NGF planners, and checked for completeness by the naval staff planners. FMFM 3-1, Command and Staff Action, and FM 21-30, Military Symbols, explain how to construct symbols used on overlays.

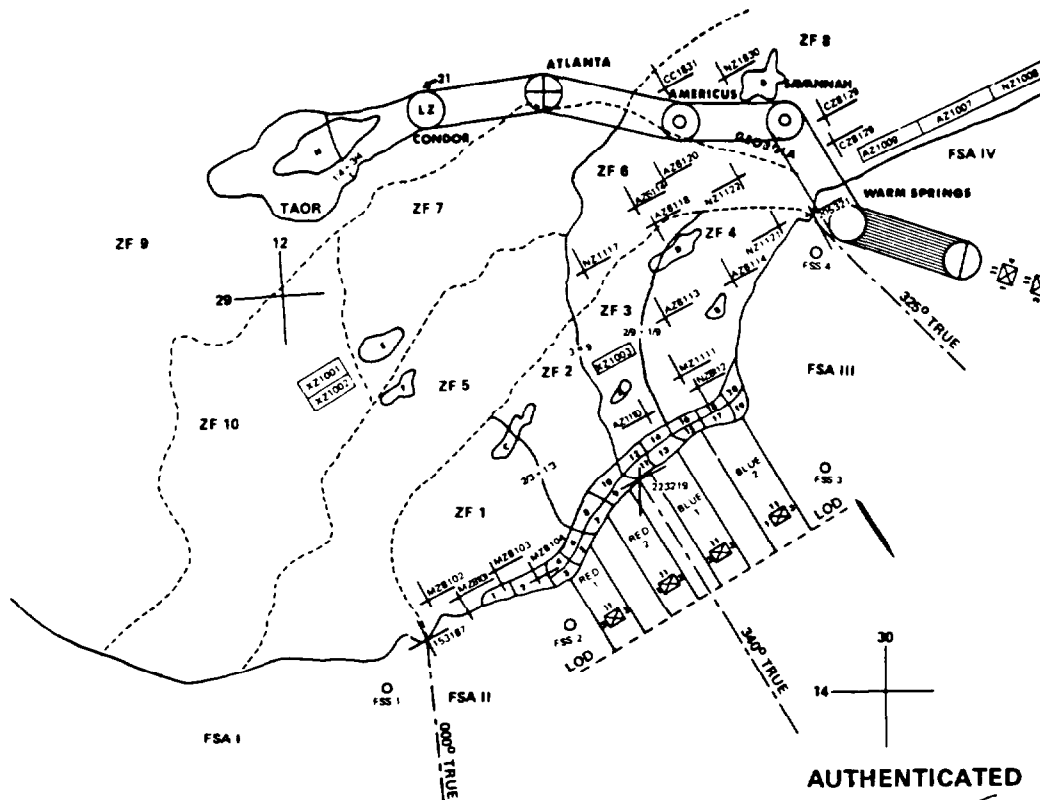
3.5.1.1 Boundaries. Boundaries of LF units will prove helpful in delineating zones of fire and will assist in selecting fire support area boundaries. LF boundaries will be indicated by a solid line with symbols and numbers corresponding to LF units.

3.5.1.2 Designated Boat Lanes. The lanes marked on the overlay and the color designation assigned to each beach will assist in stationing fire support ships to prevent interference with the ship-to-shore movement. Plotting the location of control lines (boat waves, SEALS, and so forth) will also be of help in the lifting

ZONE TIME: T

MESSAGE REF _____

(NAVAL GUNFIRE SUPPORT OPERATIONS OVERLAY; TO TAB C
(NAVAL GUNFIRE SUPPORT) TO APPENDIX 12
(FIRE SUPPORT) TO ANNEX C
(OPERATIONS) TO OPERATION ORDER 19 ____.



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J. W. Stiff

FLAG SECRETARY

CLASSIFICATION

Figure 3-3. Naval Gunfire Support Operations Overlay

of fire. These may be indicated by dashed and dotted lines.

3.5.1.3 Zones of Fire. These are delineated by the use of broken lines (solid lines if unit boundaries are used) and are designated by Arabic numerals (e.g., ZF3).

3.5.1.4 Fire Support Areas and Stations. See details in paragraph 2.4. The line separating fire support areas is designated as a true bearing to an identifiable point and shown on the operations overlay by dot-dash lines and designated by Roman numerals. Fire support stations are represented by a circle and are designated by Arabic numerals (FSS 2).

3.5.1.5 Targets. NGF targets are represented by appropriately placed tick marks, or other appropriate graphic target symbols and identified by individual target numbers (see paragraph 8.1.4.2.1 and Appendix D).

3.5.1.6 Target Areas. These areas are graphically represented and identified by their respective target area numbers.

3.5.1.7 Marginal Data. This data may be included on the operations overlay to clarify the graphic portion and assist the fire support ships in accurate delivery of supporting fire. An example of such a listing is given in Figure 3-4.

3.5.1.8 Helicopter Lanes. Approach and retirement lanes may be included, if applicable, on the operations overlay to assist the coordination of supporting arms.

3.5.1.9 Landing Force Objectives. These are outlined and identified to facilitate planning for the attack of those objectives.

3.5.2 Schedule of Fire. The schedule of fire presents in graphic form the information and instructions necessary for executing prearranged NGFS. It is an enclosure to the NGFS plan (see Figure 3-5). A separate schedule of fire normally is included as a tab to the beach reconnaissance and underwater demolition appendix. It also may be desirable to include a separate schedule of fire for other operations requiring gunfire support. The schedule of fire contains:

3.5.2.1 Ships. This column designates the ships assigned to support the operation. Information is obtained from the consolidated naval and LF requirements and the allocation of fire support ships. Ships are listed by name, hull numbers, or by numbers such as CG 2, DD 1, and so forth. They may appear in the order of types or task organization. The tactical mission (DS or GS) assigned to ships, zones of fires, FSA, and FSS are also

included. A suitable symbol referring to an appropriate footnote may be used under the hull number to indicate those ships with an air spotter assigned.

3.5.2.2 Ship Assignment and Radio Frequency. The numerator of the "A and F" column indicates the LF unit supported by the ship. The denominator indicates the radio frequency of the appropriate NGF ground spot net for direct support ships and the frequency of the appropriate NGFS net for general support ships. Air spot frequencies are shown in the NGFS communications enclosure. They may be included in the remarks column or in footnotes to the schedule of fire.

3.5.2.3 Armament. This column lists the size, caliber, and any other pertinent characteristics of the firing armament (for example, 5"/54).

3.5.2.4 Ammunition Allowance. The numerator of this column in the schedule for the first day's bombardment denotes the total ammunition available for shore bombardment, and in successive day's schedules, the estimated allowance remaining. The denominator indicates the allowance for the particular schedule of fire, and will be the sum total of the allocations represented in the schedule.

3.5.2.5 Time Periods. The body of the schedule is divided vertically into periods of time delineated by either clock time or time relative to a specified hour (for example, H-hour). These divisions are based upon convenience rather than linear scale and reflect such factors as progress of the operation, time allowed for fire support ships to conduct specified firing, coordination with air strikes, and movement of the LF. The time divisions are separated horizontally for each ship and armament by an arrow, indicating the time during which firing is to occur. This portion of the schedule of fire is further explained below.

1. In the space above each arrow, the zone of fire, target number/area and/or all other applicable categories of ammunition expenditures outlined in Appendix F are shown. The target numbers/areas and zones of fire are also reflected on the operations overlay.
2. In the space below each arrow, FSA/FSS and the number of rounds allocated for the corresponding target/category are shown.
3. To specify ammunition expenditures for certain targets, it may be desirable to enclose the target and ammunition indicated by means of brackets through the arrows.

D-DAY DESTRUCTION AND NEUTRALIZATION MISSIONS PRIOR TO H-30 MINUTES AND ALLOCATIONS
OF AMMO FOR TARGETS OF OPPORTUNITY PRIOR TO H-HOUR

Note

TGT #	DESCRIPTION	COORD UTM	ALT FT/(METERS)	SIZE FT/(METERS)	BEARING GRID N	AMT OF AMMO #	REMARKS
NZ 8101	Pitbox	1809 2634	80 (18.28)	10 x 10 (3.04 x 3.04)		30	
NZ 8102	Wpn Emplacement	1509 2753	50 (15.24)	20 x 20 (6.09 x 6.09)		20	Neutralization
NZ 8103	Wpn Emplacement	1627 2749	50 (15.24)	20 x 20 (6.09 x 6.09)		20	Neutralization
AZ 8113	14.5 mm A A Gun	2754 3094	30 (9.14)	10 x 10 (3.04 x 3.04)		30	
AZ 8114	14.5 mm A A Gun	2780 3099	30 (9.14)	10 x 10 (3.04 x 3.04)		30	
CZ 8129	Pitbox	3208 4644	30 (9.14)	10 x 10 (3.04 x 3.04)			
TOTAL AMMUNITION						2330	

SUPPORTING FIRES FOR HELICOPTERBORNE OPERATION

TGT #	DESCRIPTION	COORD UTM	ALT FT/(METERS)	SIZE FT/(METERS)	BEARING GRID N	AMT OF AMMO #	REMARKS
AZ 8118	87 mm A A Gun	2720 4271	86 (18.50)	10 x 10 (3.04 x 3.04)		15 (CVT)	H:180 TO H:120
AZ 8120	87 mm A A Gun	2780 4271	86 (18.50)	10 x 10 (3.04 x 3.04)		15 (CVT)	H:180 TO H:120
CC 1831	14.5 mm A A Gun	3480 4829	120 (36.57)	10 x 10 (3.04 x 3.04)		30 (CVT)	H:120 TO H:80
TOTAL AMMUNITION						180	

REMARKS 1. If H-hour for helicopterborne forces is changed, the time securing the fires listed above will be modified accordingly.
2. All missions in above table are destruction unless otherwise noted.
3. All ammunition computed is HE/FQ unless stated.

LANDING BEACH PREPARATION

TGT #	DESCRIPTION	COORD UTM	ALT FT/(METERS)	SIZE FT/(METERS)	BEARING GRID N	AMT OF AMMO #	REMARKS
1	Beach Prep	1928 2778	8 (1.52)	400 x 800 (122 x 182)	080		
2	Beach Prep	2308 2975	8 (1.52)	250 x 700 (76.1 x 213)	080		H:28104 in rpt area
3	Beach Prep	1868 2912	8 (1.52)	300 x 400 (91 x 122)	130		
18	Beach Prep	2220 2980	10 (3.04)	200 x 800 (61 x 243)	090		
20	Beach Prep	2506 2980	10 (3.04)	200 x 800 (61 x 152)	100		
TOTAL AMMUNITION							

PREARRANGED CLOSE AND DEEP SUPPORTING FIRES

TGT #	DESCRIPTION	COORD UTM	ALT FT/(METERS)	SIZE FT/(METERS)	BEARING GRID N	AMT OF AMMO #	REMARKS
XZ 1001	Tank Assy Area	1153 4300	800 (274)	200 x 800 (61 x 243)	045		H: 2 TO H: 80 Neutralization
XZ 1002	Tank Assy Area	1162 4283	800 (274)	200 x 800 (61 x 243)	045		H: 2 TO H: 80 Neutralization
XZ 1003	Company Bldg	2344 3297	80 (24.38)	200 x 800 (61 x 182)	080	130	0515 TO H: 180
NZ 1111	Wpn Emplacement	2490 3102	35 (10.66)	20 x 20 (6.09 x 6.09)		20	0001 TO 0515
NZ 8112	Pitbox	2548 3011	20 (6.09)	10 x 10 (3.04 x 3.04)		30	0001 TO 0515
TOTAL AMMUNITION						570	

REMARKS 1. Targets recorded as destroyed or neutralized may be deleted.
2. All missions in above table are destruction unless otherwise noted.
3. All ammunition computed is HE/FQ unless stated.

PREARRANGED NEUTRALIZATION FIRES ON CALL

TGT #	DESCRIPTION	COORD UTM	ALT FT/(METERS)	SIZE FT/(METERS)	BEARING GRID N	AMT OF AMMO #	REMARKS
AZ 1007	Prepared Positions	3340 4099	10 (3.04)	150 x 800 (45.72 x 182)	080	90	
NZ 1008	Prepared Positions	3383 4714	10 (3.04)	150 x 800 (45.72 x 182)	080	90	
NZ 1117	Emplacements	2492 4138	75 (22.85)	20 x 20 (6.09 x 6.09)		20	
NZ 1121	Emplacements	2929 4081	10 (3.04)	20 x 20 (6.09 x 6.09)		20	
NZ 1122	Emplacements	2960 4277	10 (3.04)	20 x 20 (6.09 x 6.09)		20	
TOTAL AMMUNITION						950	

REMARKS 1. To be fired as directed by CTF (ICATF) or as required by CTF (ICF) or supported units.
2. Ammunition for prearranged fires on call is allocated from reserves.
3. All ammunition computed is HE/FQ unless stated.

1. **TARGET NUMBER.** The number of the target for those targets that appear in the target list. For target numbers, see paragraph 8.1.4.2.1 and Appendix D.
2. **DESCRIPTION.** The nature or description of the target (landing beach preparation, gun position, trenches, etc.).
3. **COORDINATES/LOCATION.** The coordinates of a point target or the center coordinate of an area target. The reference system used will be specified by footnote or other means.
4. **ALTITUDE/HEIGHT.** The altitude is expressed in meters unless otherwise specified by footnotes or other means.
5. **SIZE.** Not required for point targets. For area targets, the length and width of the target, given in that order. The units of measure will be specified by footnote or other means.
6. **ATTITUDE/BEARING.** The attitude or bearing of the target centerline along the long axis of the target. Reference north will be specified.
7. **AMOUNT OF AMMUNITION.** The total number of rounds of the specified caliber of ammunition to be fired against the target by all ships scheduled to fire against the target. Unless otherwise stated, all ammunition is high explosive, fuze quick. Variations in projectile/fuze are enclosed in parentheses after amount of ammunition, i.e. 30 (HE), 40 (CVT) 10 (WP-Q).
8. **REMARKS.** Special considerations for attack on targets, further descriptive amplification, and any other appropriate remarks may be included in this column. Specify desired effect of fire (preparation, destruction, neutralization, harassing, interdiction).

Figure 3-4. Naval Gunfire Support Operations Overlay — Marginal Data

CLASSIFICATION

ENCLOSURE 2

OPERATION _____

COMPHIBGRU ONE 1-6 _____

REFERENCES NWP 22-2, ATP 4, NWP 22

ZONE TIME: T

(SCHEDULE OF FIRES) TO TAB C
 (NAVAL GUNFIRE PLAN) TO APPENDIX 12
 (FIRE SUPPORT) TO ANNEX C
 (OPERATIONS) TO OPERATION ORDER 19__.

COPY ____ OF ____

FIRST FLEET

CTF12, COMMANDER AMPHIBIOUS TASK FORCE

AND COMPHIBGRU ONE

USS BLUE RIDGE (LCC 19), FLAGSHIP

WILSON COVE, SAN CLEMENTE ISLAND

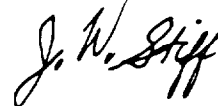
DTG: _____

MESSAGE REF: _____

ONE	TWO	THREE	FOUR	FIVE	SIX	SEVEN	EIGHT	NINE	TEN	ELEVEN	TWELVE	THIRTEEN	FOURTEEN	FIFTEEN	SIXTEEN	SEVENTEEN	EIGHTEEN	NINETEEN	TWENTY
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
CO 1	60 000 000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
CO 2	60 000 000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
CO 3	60 000 000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
CO 4	60 000 000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
CO 5	60 000 000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
CO 6	60 000 000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
CO 7	60 000 000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
CO 8	60 000 000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
CO 9	60 000 000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
CO 10	60 000 000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
CO 11	60 000 000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
CO 12	60 000 000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
CO 13	60 000 000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
CO 14	60 000 000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
CO 15	60 000 000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
CO 16	60 000 000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
CO 17	60 000 000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
CO 18	60 000 000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
CO 19	60 000 000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
CO 20	60 000 000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000

- NOTES: 1. AO ON STATION AT 0600
 2. UNREP. RELIEVED ON STATION BY DD11
 3. SUPPORT UDT OPS VICINITY BEACH BLUE TWO
 4. EXECUTE COUNTERMECHANIZED FIRES IAW APPENDIX _____
 5. DENOMINATOR IN COLUMN FOUR REPRESENTS TOTAL OF ALL AMMUNITION PLANNED FOR THIS SCHEDULE INCLUDING COMPUTED RESERVE FOR CALL FIRES, A/M, T/C, AND SAFETY FACTOR.

AUTHENTICATED



J. W. STIFF

LIEUTENANT COMMANDER, USN
 FLAG SECRETARY

CLASSIFICATION

Figure 3-5. Schedules of Fires, D-Day

4. Use of colors in the schedule of fire will improve readability.

3.5.2.6 Restriction on Fires. The time limits of airspace coordination areas may be reflected on the schedule of fire as vertical lines, particularly when they have broad applicability to the conduct of the schedule of fire (for example, beach strafes or helicopter approach and retirement lanes). If no firing is to be conducted by a specific ship during that period, the absence of arrows will indicate that fact to the ship.

3.5.2.7 Remarks/Notes. These are added to the schedule of fire whenever and wherever they are necessary for the expeditious control and execution of gunfire support. They may take the form of general explanations of symbols or terms; or may appear in the schedule itself, either cryptically (for example, UNREP, Detach on signal, Assume D/S 2/8) or referring to a more detailed remark (for example, see note No. 1).

3.5.3 Working Overlay. The use of preliminary, or "working," operations overlay can greatly aid the planner in the preparation of both the final operations overlay and schedule of fire. The working copy would include such additional items as the amount and type of ammunition to be expended on each target, the stations/areas from which various fires are to be delivered, and the LF scheme of maneuver.

3.5.4 Communications. This enclosure contains the details of communications necessary for the execution of NGFS. The information is derived from the communications-electronics annex to the basic plan/order.

3.5.4.1 Basic Communications Enclosure. It makes provision for:

1. Designation of time each net is to be activated
2. Circuit designator, frequency, and net title of each net
3. Station designated to act as net control for each net
4. Special instructions for air spot communications
5. Instructions concerning the use of numeral code
6. Instructions concerning authentication
7. Instructions concerning the use of voice radio security devices including time of code change

8. Any additional instructions or restrictions that may be imposed

9. Detailed instructions in case of circuit interference.

3.5.4.2 Radio Guard Chart. This chart is in the NGF communications enclosure. It will contain:

1. Circuit designator and net title of each frequency to be used
2. Circuit designation, type, and frequency
3. Name, task designation, and/or hull number of each fire support group, element, unit, and ship supporting the operations
4. Title of each LF unit and/or other unit supported
5. Units that are to guard, listen, or act as net control on each circuit
6. Notes, as necessary, to explain the radio guard charts, to include changing of call signs and frequencies and time of changes.

3.5.5 Replacement Ammunition. This enclosure contains information on the replacement ammunition that will be available in the objective area and instructions for such replenishment for fire support ships. Replacement ammunition is of two categories: that carried into the objective area with assault forces and that brought into the objective area after the initial landing. The appendix on availability of replacement ammunition includes:

1. Amount of ammunition, by caliber and type, carried in assault shipping
2. Information on replacement ammunition carried in other than assault shipping, listing amount, time of arrival, and name and hull number of ship in which carried
3. Instructions, if applicable, for ammunition replenishment of small fire support ships by large fire support ships
4. Name and designation of commander responsible for control and coordination of ammunition replenishment.

3.5.6 Support of Mine Warfare Operations.

This enclosure contains instructions for fire support of mine warfare operations. They have the same format as the NGFS plan. The tabs normally used are:

3.5.6.1 Tab A. It is in overlay form and presents information on minesweeping or minelaying tracks, zones of fire, and fire support areas and/or stations. Considerations involved in the preparation of this overlay generally are the same as those outlined in paragraph 3.5.2. The plan for mine warfare operations and fire support ships assigned will determine, to a large extent, the selection of zones of fire and fire support areas. These zones and areas need not correspond to those employed in other phases of the operation.

3.5.6.2 Tab B. It is the schedule of fire for support of mine warfare operations. It will specify certain gunfire control points along the planned track of the mine warfare units and the locations of the fire support ships. The control points are established so that certain fire support ships may conduct destructive fire when mine warfare forces are well-clear. The zones of fire and targets on which firing may be conducted must be clearly specified, as well as the ships that are to conduct the firing.

3.5.7 Support of Beach Reconnaissance and SEAL Operations. This enclosure contains instructions for fire support of beach reconnaissance and SEAL operations as outlined in NWP 22-4.

3.5.8 Countermechanized Plan. This enclosure contains instructions for the execution of NGFS against mechanized forces. It provides a system for attacking enemy mechanized forces by fire from the point of initial detection to the final destruction or breaking up of the attack. Firing is conducted in successive stages along the route (or routes) of approach by air, NGF, and artillery as the forces come within range of each arm.

The enclosure normally consists of two parts: the text and the overlay. The text contains information and instructions necessary for executing the plan, and the overlay shows the location of areas to be brought under fire. The countermechanized plan makes provision for:

3.5.8.1 Organization of Control Agencies. Air spotters, ground observers, ground liaison officers, and tactical air observers will be included as agencies in the system established in the plan to control massed fire. The relationship, authority, and position of each agency in the system must be clearly indicated. The countermechanized plan will specify the definite command relationship for control of direct, general, and reserve

fire support ships to prevent unnecessary doubt or delay from the time of request for support until actual delivery of fire.

3.5.8.2 Procedure for Assignment of Fire Support Ships to Mass Fire on Each Target. The considerations are terrain, location of ships, position of targets, and availability of spotting agencies.

3.5.8.3 Most Effective Gun-Target Line. Wherever possible, the gun-target line will be such that enfilade fire may be used.

3.5.8.4 Adjustment of Fire. A statement of the method to be used to identify the fall of shot of separate fire support ships by the spotter when employing massed fire.

3.5.8.5 Ammunition Expenditure Desired. The rates of fire and/or amount of fire, as well as the ammunition expenditure by caliber and type, are specified.

3.5.8.6 Communications to be Employed for Control of Fire. The procedures to be used and circuits to be employed for the initial warning order, call fire, and adjustment of fire are specified.

3.5.8.7 Coordination With Offensive Air Support. The assignment of targets to the various supporting arms must be carefully planned and coordinated to provide the most efficient engagement of enemy forces and to minimize the danger that fires may pose to friendly aircraft making strikes against the mechanized attack.

3.5.8.8 Identification. Information is provided on visual identification of friendly armor.

3.5.8.9 Countermechanized Overlay. The countermechanized overlay, normally prepared as a tab, shows the location and designation of the targets, that usually are circular in form. It will prove helpful to the fire support ships if the overlay shows in columnar form the designation of each target and number, target description (road, junction, defile, bridge, and so forth), and target location by coordinates. Pertinent considerations regarding countermechanized fire planning areas are:

3.5.8.9.1 A Group of Targets. This group consists of several targets in one locality grouped together for ready identification. Each group of targets will normally be numbered (see Appendix D).

3.5.8.9.2 Selection. The selection of targets and groups of targets is based on:

1. Positions on probable routes of approach that will channel the approaching vehicles (road junctions, defiles, and bridges with their approaches)
2. Accessibility to trajectories
3. Observation by one or more spotting agencies
4. Ease of identification, particularly from the air
5. All routes of approach will be covered by two or more targets or groups of targets that are well separated.

The designation of the targets and groups of targets will be such that each may be identified readily. For rapid voice radio communication, a simple, concise method of designation will be selected.

3.5.8.10 Instructions to Fire Support Ships.

General instructions to the fire support ships may be included in the countermechanized plan. Sample entries are:

3.5.8.10.1 Maximum Fire. Fire support ships will bring maximum fire to bear in the shortest possible time upon designated targets, in order to defend the LF from enemy mechanized attack.

3.5.8.10.2 Alert. Upon detection of enemy mechanized forces, all fire support ships will be alerted.

3.5.8.10.3 Unobserved Fire. This may be fired within normal safety limitations. Fire closer to the LF than prescribed by safety limitations will be ordered by the CATF only upon specific request by the CLF. Rate and amount of fire are prescribed as the sustained rate with all guns able to bear for a specified number of rounds.

3.5.8.10.4 Observed Fire. This fire may be spotted by air spotter, ground spotter, offshore spotter in a small boat, or shipboard spotter. Safety limitations for unobserved fire will prevail unless the spotter is in direct communication with the unit within the zone of action in which the fire is falling. Safety of the LF is the responsibility of the LF unit commander whose spotting agency is in direct communication with the firing ship and senior LF echelon commanders. Rate and amount of fire are prescribed as rapid rate with all guns able to bear for a specified number of rounds. Ships will make maximum use of radar beacons and be prepared to shift fire to follow the attack upon announcement of a different target number or coordinates.

For observed fire, the firing ship being spotted will relay over the NGF control net the spotters' original fire mission and spotting corrections. All NGF support ships will continue previous assignments, but will be prepared to execute the countermechanized plan if directed. They will fire at center of targets or at coordinates designated, unless specifically directed to do otherwise.

3.5.8.11 Radar Surveillance of Key Routes at Night. Fire control radars are capable of detecting moving targets such as tanks in suitable geographical regions. Factors to consider in planning such searches are:

1. The amount and size of clutter in the search area must be minimal. Also, suitable search sectors are limited to routes in the immediate vicinity of bridges or other features which are easily recognizable by radar.
2. Because of the spreading of a radar beam with distance, search areas must be close to the searching radar.
3. Slow and careful search of a limited area is required and operators must be highly experienced. Such use of fire control radars is exhausting to both personnel and equipment, and complete dependence cannot be placed on such surveillance.
4. Radar surveillance should be limited to key routes and key time periods, preferably being used "on call" when an alert has been received by other means.

3.5.9 Reports. The reports enclosure provides information on the status of fire support ships to interested commands. It is designed to put the minimum practicable strain on the communications system through the use of standardized report formats. The enclosure gives specific direction for:

1. Flow of information to command ships
2. Code names, methods, time, originator, addressees, and circuits to be used in making reports desired for the gunfire support operations
3. Instructions for maintenance of NGFS logs.

3.5.9.1 Supporting Arms Report Form. This is a one-sheet document that provides standard formats for desired reports as follows:

3.5.9.1.1 Ammunition Fire Unit-Mission Fired Report. There are two situations that may exist and require the use of this report.

a. Reporting Opportunity Missions. This report is made by the firing ship to the command responsible for coordination of supporting arms at the first opportunity for each nonscheduled mission fired at a target of opportunity (see paragraph 2.10.6). This report is not a request to fire and a fire mission will not be delayed for its transmission. The report includes target number, grid coordinates and description, and, if possible, rounds fired and mission results.

b. Reporting Unfired Targets. This is a report made when a scheduled target cannot be fired on or is fired on with a probable effectiveness of less than 50 percent. The report will include target number and reason for failure to accomplish the mission. This report is made on the NGF control net by the firing ship to the command having operational control of the target list. Its submission is not to delay fire on subsequent targets.

3.5.9.1.2 Tactical Report. There are many uses for this report. Of particular interest to NGF are the following uses.

a. Reporting New Targets. This report, made by the firing ship to the command responsible for supporting arms coordination on the NGF control net, provides information on new targets discovered but not fired on. It is also used to provide corrected locations of targets. The alert word "New Target" should be used in the TACREP to identify this report.

b. Reporting Battle Damage Assessment. This report is made by the firing ship to the supporting arms coordination agency on the NGF control net. The frequency of this report should be specified in the Reports Enclosure. The alert word for this report is "BDA."

3.5.9.1.3 Fire Mission-Beacon Location. This reports the location of and identification code of one or more radar beacons. It is made by the beacon team to the NGF ship. Reference to previously planned locations can be made if it is advisable not to transmit locations on a clear net. See paragraph 2.11 for more information on employment of the beacons.

3.5.9.1.4 Ammunition Fire Unit-Ammunition Status. The OPORD will designate the time of submission of this report. The major consideration is to keep the CATF and other commanders concerned with the execution of NGFS informed of the status of the bom-

bardment ammunition on board each of the fire support ships. The ammunition report will contain information on the caliber, type, and amount of each type of ammunition remaining on board. The frequency of making this report depends on the estimated rate of ammunition expenditure that may be expressed in percentages or by actual number of rounds.

3.5.9.1.5 Ammunition Fire Unit-Fire Unit Status. This report is made by the NGFS ship to the supported unit (NGLO/spotter) when the ship reports on the spot net it is prepared to provide call fire support. It should also be used on the NGF control net to notify the SACC of a ship's repositioning to another location or a change in the ship's firing capability.

3.5.9.2 NGFS Reports Log. Submitted reports are routed within coordinating agencies so as to facilitate maintenance of NGFS logs at desired levels. The NGFS reports log systematically records data such as the following for use in action reports at various levels of command:

1. Number of enemy defenders, if known, versus number of assault troops; amount of ammunition expended during support of assault operations; extent of casualties suffered by both sides
2. Number, type, and location of enemy defensive installations fired on; ammunition expended against each; damage inflicted on each
3. Type of mission; type of controls; ammunition expenditures; results of each mission rendered for close support, including call-fire missions
4. Comments on performance of spotting agencies and fire support ships
5. Comments on adequacy of NGFS plans
6. Recommendations for future operations.

3.6 OPERATIONAL PLANNING

3.6.1 Advance Force Operations. The decision to employ an advance force for pre-D-day operations is made by the CATF after consultation with the CLF, weighing the relative advantages of strategic and/or tactical surprise and the requirements for preparation of the objective area. Advance force operations will provide for:

1. Assignment of tasks such as destruction, neutralization, harassing fire, and so forth, for each fire support ship

2. Designation of zones of fire and assignment of fire support ships to each
3. Designation of fire support areas and/or stations and assignment of ships thereto
4. Amount or percentage and types of ammunition required for destruction, neutralization, targets of opportunity, and other fire missions
5. Designation of specific targets to be destroyed and assignment of specific ships to accomplish destruction
6. Employment of air spot
7. Periods during which firing will be conducted
8. Schedule of fire
9. Screening of fire support ships (usually accomplished by the screen commander, hence does not appear in the NGFS plan)
10. Relief of fire support ships
11. Support of mine warfare operations
12. Support of beach reconnaissance and SEAL operations
13. Replenishment of ammunition, if required.

3.6.1.1 Extent and Duration of Advance Force Operation. The extent and duration of pre-D-day operations, once the decision to employ an advance force has been made, is determined, in large part, by the tasks to be accomplished. The tasks to be accomplished may include any or all of the following:

1. Destruction of defenses ashore
2. Preparation of sea areas
3. Preparation of beaches and beach approaches
4. Isolation of the objective and maintenance of local air superiority
5. Pre-D-day landings
6. Demonstrations
7. ECM

8. Meteorological information.

3.6.1.2 Naval Gunfire in Advance Force Operations. The duration of pre-D-day operations may not be dependent on the time necessary to complete requirements designated for NGF. The duration of preliminary bombardment depends upon many factors. Among them are:

1. Hostile surface and air reaction
2. Number of targets to be destroyed and disclosure of new targets
3. Extent of minesweeping and SEAL operations required
4. Ability of advance force to resupply ammunition to the fire support group
5. Enemy capability of reinforcement
6. Weather
7. Extent to which planned bombardment can accomplish the expected results.

3.6.1.3 Planning Considerations. After the decision to employ an advance force has been made by the CATF, the planning considerations confronting the major commanders are:

1. The CLF is responsible for the preparation of LF requirements for NGF and air support, pre-D-day seizure of supporting positions, demonstrations, and reconnaissance. If pre-D-day landings or demonstrations are to be conducted, he will direct the landing group commander of that force to report to the commander of the advance force for planning. The CLF is also responsible for indicating the troop staff representatives he desires to accompany the advance force commander.
2. The CATF is responsible for consolidating the requirements of the LF with those of the other elements of the ATF. He directs the commander of the advance force to prepare the detailed plans for the operation of that force and reviews them to ensure that they meet his overall requirements.
3. The advance force commander is responsible for the detailed planning for the operations conducted by his force. He prepares the NGF, air, minesweeping, landing site reconnaissance, SEAL, mine and net laying (if required), and pre-D-day landing plans.

3.6.2 D-Day Operations. General provisions are made in the D-day schedule for:

1. Continuation of target attack begun during the pre-D-day bombardment
2. Prearranged close support of the landing group, based on the expected rates of the ship-to-shore movement and the subsequent LF advance ashore until approximately H-hour plus 2 hours
3. Prearranged deep fire support of the landing group, extending throughout the hours of daylight, and assignment of adequate ships in direct and general support of assault force units.

Specific provisions are:

1. Assignment of tasks (destruction, neutralization, and so forth) for each fire support ship
2. Designation of zones of fire and assignment of fire support ships to each
3. Designation of fire support areas and/or stations and assignment of ships thereto
4. Amount, or percentage, and types of ammunition to be fired on D-day
5. Neutralization of high-priority targets that may remain after completion of the pre-D-day bombardment and periods during which this fire will be conducted in the various zones of fire
6. Assignment of ships in direct and general support of certain units of the landing group
7. Targets and target areas to be suppressed on D-day and assignment of ships to these missions
8. A flexible system for lifting or repeating fire delivered during the period between the time the landing craft or amphibious vehicles cross the line of departure and the shore fire control parties are established ashore
9. A schedule of fire prescribing the periods during which firing will be conducted
10. A flexible system similar to that in item 8 is necessary for landing by helicopters.

3.6.3 Post-D-Day Operations. Unlike pre-D-day and D-day schedules, post-D-day firings are not consolidated in a "schedule of fire," because many unknown

factors preclude preparation of a detailed schedule; there are, however, certain foreseeable requirements.

3.6.3.1 Ships Necessary for Landing Force Support. It is necessary that the LF be provided the maximum amount of possible fire power. NGFS is critical until all LF artillery is ashore and operational. Thereafter, it should be used to augment the artillery until such time as the advance inland exceeds effective employment of NGF. The absolute minimum requirements for NGFS are:

1. Each committed maneuver battalion — one fire support ship with at least two mounts, direct support
2. Each committed maneuver regiment/brigade — one fire support ship, general support
3. CLF — one or more fire support ships, general support.

If commitment of the reserve is preplanned, additional ships will be assigned as LF general support and will be used for direct support when the reserve is committed.

3.6.3.2 Ships Necessary for Screening. The strength of the screen can be estimated by considering enemy capabilities for naval and air attacks.

3.6.3.3 Zones of Fire. Zones are subject to many changes after D-day because of shifting of front lines.

3.6.3.4 Planning. Post-D-day NGF support plans are based upon:

1. Estimates submitted by the LF
2. The amount of artillery and offensive air support available
3. The number of ships and ammunition available
4. The enemy situation
5. The planned activities of the LF.

Prearranged fire support requirements, to include preparation, defensive, interdiction, and harassing fire, can be determined based upon LF operational plans. Opportunity fire will be rare after the LF is ashore. Call fire requirements are the most difficult to determine and should be based on worst case estimates.

3.6.4 Planning in the Objective Area. Planning conducted in the objective area is in addition to that described in the preceding paragraphs. This planning is necessary because the formal plan is based on an estimate of enemy resistance and friendly force movement. As the situation develops ashore, previous plans must be modified and plans for support of a continuing attack formulated, commencing a few hours after the LF has landed and continuing until there is no longer a need for NGFS.

Planning in the objective area provides for the following adjustments to the plan.

3.6.4.1 Changes in Fire Support Areas and/or Stations. Changes are made to permit the fire support ships to assume positions from which they may deliver maximum effective NGFS.

3.6.4.2 Reassignment of Boundaries of Zones of Fire. Reassignment is made necessary by LF movement.

3.6.4.3 Reassignment of Fire Support Means. This will include reallocation of ammunition, fire support ships, air spot, and/or radio frequencies.

3.6.4.4 Assignment of Specific Missions to Specific Ships and/or Air Spot. LF requirements, target intelligence, and/or terrain may require the assignment of a specific type of ship and/or air spot to accomplish the mission.

3.6.4.5 Preparation of Defensive Fire Plans. The LF at all echelons from battalion to division prepares plans for defensive fire.

3.6.4.6 Requests for Interdiction and Harassing Fire Missions. The NGFO at each echelon consolidates requests for these missions and submits the consolidated requirements.

3.6.4.7 Requests for Preparation Fire. The NGFO at each echelon consolidates the requests, coordinates them with the movements of the LF, and then submits the requirements.

3.7 EXECUTION

The NGFS plan is executed by the task organization in the sequence established in the following paragraphs.

3.7.1 Pre-D-Day (Advance Force). Pre-D-day bombardment is the preliminary bombardment executed before ships and craft carrying the LF arrive in the

transport area. Its primary mission is to destroy enemy batteries and other installations capable of interfering with air, naval, and LF operations in the objective area and to support SEAL, reconnaissance, and mine warfare operations. The advance force executes the preliminary bombardment under the direction of the advance force commander.

3.7.1.1 Reports. To keep abreast of the changing target status, each ship must evaluate target damage, confirm target locations, and maintain an up-to-date target information chart and file. Destruction reports are required during pre-D-day bombardment and on D-day prior to H-hour. Subsequent to H-hour, reports will be submitted for deep supporting fire. Daily reports of destruction accomplished are compiled on the advance force flagship and sent to the approaching ATF and LF, so that the commanders of those forces may be informed of progress in the scheduled firing.

3.7.1.2 Support of Mine Warfare Operations. Subject to special directives or specific orders in the operation plan, gunfire support ships will comply with the following instructions when supporting mine warfare operations:

1. Support ships will keep in swept water at all times, allowing a safe margin near the limits of swept paths.
2. Support ships normally will not take part in general bombardment operations that may be concurrent with mine warfare operations. When ordered to do so, however, they usually will operate under the fire support unit commander in command in that area.
3. Where the number of fire support ships permits, they will operate in pairs (distance not over 1,000 yards) for mutual support and for effective delivery of fire in support of the mine warfare unit.
4. Support ships will be disposed toward the flanks (seaward if near land) in swept water and astern of the mine warfare units, at least 1,000 yards from all sweep gear. Individual fire support ships will give due regard to the possibilities of mines with ship-counter mechanisms. Patrolling by support ships will be avoided while possibility of mines still exists, unless the menace of submarines or counterbattery fire is greater.
5. Fire support ships may have to fire over ships of the mine warfare formation. In such instances,

fuzes and trajectories must be selected with due regard for the safety of the mine warfare units.

6. Fire support ships in waters suspected of containing influence or pressure mines will operate at slowest practicable speed.
7. Mine clearing helicopter units will be operated in close coordination with fire support ships in accordance with tactical air operations directives.

3.7.1.3 Support of SEAL Operations and Beach Reconnaissance. This requires the employment of all types of fire support ships. General support ships are stationed at positions that will permit them to protect and furnish counterbattery fire for the overall operation.

3.7.2 D-Day (Amphibious Task Force). The CATF assumes the coordination and control of NGF on his arrival in the objective area. The support group commander may continue technical control and execution of details. In the event of casualty to the command controlling NGF, an alternate command must be designated. This requires that the standby command monitor circuits and keep the situation map and status boards up to date.

Details requiring careful supervision during execution of the D-day bombardment are:

1. Since the bombardment occurs during the most critical period, the schedule of fire must be carefully supervised during the execution. Casualties to fire support ships, unexpected resistance, and so forth, will be frequent and must be met with prompt and effective action. The interval between H-hour and the commencement of call fire must be filled with prearranged fire and careful observation made to locate new targets and targets of opportunity.
2. Provision must be made for prompt relief of fire support ships that are low on ammunition. This can be anticipated in most cases by a continual check of ammunition expenditure by the agency controlling NGF.
3. Throughout the support of the operation, effort must be made to avoid shifting fire support ships between zones of fire more than necessary, in order to take advantage of the ships' familiarity with the targets and terrain.
4. Until the LF has become firmly entrenched ashore with ample artillery support, reserve fire

support ships must be sufficient to permit ready substitution of direct support ships or to supply additional firepower requested by the LF.

All fire support ships assigned D-day missions must be on station ready to commence scheduled fire on time. It is of the utmost importance that the assigned target areas be well covered with the ammunition allowed. The D-day fire plan gives the time of commencing fire, ceasing fire, and lifting or shifting fire according to a time schedule.

3.7.2.1 D-Day Fire. The execution of D-day fire prior to scheduled H-hour will consist of three separate elements: isolation of the landing area, neutralization of specific targets, and SEAD fire. Scheduled fires may be interrupted because of delays in the landing waves. Preplanned ACAs should permit NGFS to continue during aerial operations.

If H-hour is delayed, provision will be required for gunfire support to continue the assigned missions and thus compensate for the delay. This usually is accomplished by repeating a previous portion of the schedule of fire, using a reduced ammunition allowance. The schedule of fire at or near H-hour is always based on the progress of the leading assault wave rather than on a specific clock time. The schedule of fire for the period immediately after H-hour provides covering fire for the advancing LF. Covering fire normally is scheduled for about 2 to 4 hours and terminates any time that control of NGF is taken over by shore fire control parties. This period requires a high degree of gunfire support coordination. Since the schedule is based on an estimate of the rate of advance of the LF, support units must be prepared to lift or repeat fire at the force's request. They also must be kept informed of the position of front lines.

3.7.2.2 Control of Fire. The most critical period of the assault landing extends from the time just before the assault waves land until the beginning of the advance inland. The quality of NGFS of the assault waves always has been a contributing factor in the success or failure of a landing. One of the advantages of well-planned NGFS is its ability to render close and continuous protection to the assault waves in their approach to the beaches/zones and similar protection in the period immediately after the landing. This ability is dependent upon an observation agency, either surface or air.

3.7.3 Post-H-Hour. The post-H-hour phase of NGF commences as scheduled fire ceases. This occurs when direct fire support ships are contacted by their supported LF units and commence firing in accordance with the requests of the supported unit. Since enemy

reaction is most strongly experienced during this phase, execution of fire will be based on a continually changing ground situation. The control of NGF at this time will remain with the CATF until the CLF is established ashore. Execution of fire during the post-H-hour phase primarily depends on:

3.7.3.1 Knowledge of Front Line Positions. An important factor in supporting the LF is the accurate knowledge by all firing ships of the location of the front lines. The agency controlling NGF must ensure that the ships are kept informed of all front line positions and that a master situation map for all supporting arms is maintained.

3.7.3.2 Relief of Fire Support Ships. Fire support ships usually are given fire support assignments for single 24-hour periods, but variations will occur depending on the rapidity of ammunition expenditure. Normally, destroyers may be assigned in direct support for no longer than 24-hour periods because of fatigue of gun crews and expenditure of ammunition. Factors that must be considered when relieving fire support ships are:

3.7.3.2.1 Time. Relief will be accomplished during comparatively quiet periods ashore, normally around midnight or 3 to 4 hours prior to sunset. The latter time is preferable, since it allows the ship to become familiar with the assigned terrain and its fire support area prior to darkness. If routine relief is accomplished at times other than these, some interference with firing may result.

3.7.3.2.2 Place. Whenever practicable, relief of fire support ships will occur on station to prevent interruption of fire and to ensure that the relieving ship can be briefed fully by both the supported LF unit and the ship being relieved.

3.7.3.2.3 Type of Ship Requested by the LF. The daily requirements submitted by the LF for direct and general support ships will request ships by type to support specific LF units. The request will reflect the type of ship needed to engage the expected targets at expected ranges in the zone of action of the support unit, and will be complied with if possible.

3.7.3.2.4 Availability of Relief Ships. This will frequently affect the time and place of relief, as well as the type of ship assigned to support a specific unit. If the submarine threat is a major consideration, more ships must be allotted for screening, and reliefs of firing destroyers may have to be effected on the screening station.

3.7.4 Individual Ships. To conduct NGFS of an amphibious operation effectively, individual fire support ships must meet two conditions:

1. A high degree of operational readiness, particularly in the techniques and procedures peculiar to gunfire support, must exist in each ship for both personnel and material.
2. Key personnel charged with the execution of NGFS must be familiar with the plan.

3.7.5 Effect of Enemy Attack. Unless the OTC has determined that the situation warrants anchoring, all combatant ships of destroyer size or larger will maintain appropriate speeds, or at least steerageway, except:

1. In an emergency
2. When replenishing makes this impracticable
3. During delivery of close supporting fire by ships in the boat lanes while boats are passing. In this case, ships clear the boat lanes as soon after H-hour as it is safe to do so
4. When close support of underwater demolition operations gives insufficient sea room to maintain steerageway.

During enemy air attack, fire support ships will maneuver in accordance with prescribed doctrine, maintaining fire support as practicable and consistent with the tactical situation.

3.8 NAVAL GUNFIRE SUPPORT NETS

NGF communications are established to provide tactical and operational control of NGF in support of the LF, effective liaison between all naval and LF gunfire control agencies, and administrative control of NGF in support of the LF. Operations in an EW environment may require planning for additional equipment and alternate means of communication to overcome the enemy's EW capability.

Communication annexes to the ATF, advance force, and LF operation orders will show the call signs, frequencies, circuit designators, instructions concerning use of voice radio security devices, and other special instructions pertaining to the radio nets to be used. The requirement for authenticating communications on gunfire support nets cannot be overemphasized; all questionable transmissions must be confirmed.

The nets most commonly used in NGFS are contained in the Communications Planning Guide in NWP 4, Basic Operational Communications Doctrine (U). (See Figure 3-6.)

3.8.1 Amphibious Task Force Nets

3.8.1.1 NGF Control Net (HF). This net is used for requesting and assigning fire support ships, requesting relief of fire support ships, making relief and emergency reports and disseminating orders pertinent to the execution of scheduled fires. Net control on this net is the CATF. Other stations on the net include fire support group and unit commanders, fire support ships, screen commanders, and LF and division NGFO as appropriate. (See Figure 3-7.)

3.8.1.2 Naval Gunfire Control Overload Net (HF). This net is identical to the Naval Gunfire Control Net except that it utilizes a different frequency. These multiple nets may be designated the Naval Gunfire Control Alfa and the Naval Gunfire Control Bravo Nets. The overload net may be used when there is a high volume of traffic on the Naval Gunfire Control Net and may be employed to send such traffic as ammunition status, results of attacks on targets, and administrative traffic. CATF is net control. (See Figure 3-7.)

3.8.1.3 Ship Air Spot Reporting In and Out Net (UHF). The CATF is net control on this net. The other stations on the net include parent carriers, land base(s), tactical air controllers, the LF commander, and all air-borne NGF spotting aircraft that report in and out.

The net is employed to assign air spotters to specific gunfire support ships and shore fire control parties as directed; direct NGF air spotters to guard other air spot frequencies if required; brief spotters, as directed, on location of targets, friendly front lines, zones of action, and so forth; and release air spot planes when relieved and return them to TATC net controller or senior air observer for departure from the area. The TATC net may be used as the Ship Air Spot Reporting In and Out Net for small scale operations. (See Figure 3-8.)

3.8.1.4 Overall Naval Gunfire Control Net (HF). This net is activated when amphibious operations employ two or more attack and landing groups for overall control of NGFS. The CATF is net control and the other stations on the net include attack group commanders, special support group, CLF, and the landing group commanders. (See Figure 3-9.)

3.8.2 Landing Force Nets

3.8.2.1 Landing Force Naval Gunfire Support Net (HF). This net provides a means for requesting NGFS and coordinating the employment of gunfire support ships in general support of the LF. The net is guarded by, and provides radio communications for, the LF NGFO (net control), NGFO subordinate units, and ships in general support of the LF.

3.8.2.2 Naval Gunfire Ground Spot Net (Primary HF/Secondary VHF). This net provides direct communication between the NGF spot team and an assigned direct support ship supporting the battalion. The NGLO at the battalion FSCC has net control normally, and he monitors all traffic for purposes of coordination. For frequency adjustment, the fire support ships will tune both transmitter and receiver to the spotter. The NGLO at the infantry regiment may monitor the net if desired. One frequency is allocated to each infantry battalion assigned a direct support ship. If a general support ship is assigned a mission in support of the infantry battalion, it will enter the Naval Gunfire Ground Spot Net for the duration of that mission. (See Figure 3-10.)

3.8.2.3 Naval Gunfire Air Spot Net (UHF). This net is used when the NGF spot team cannot observe a target or when, for other reasons, the adjustment of NGF is done by air. Air spotters talk directly to the direct or general support ship, and adjust NGF on the target. Stations on the net include the NGF air spotter and the fire support ship. When required, the NGLO at the infantry battalion, regiment, and division, as well as the NGF spot team, may enter this net (see Figure 3-11). NGFS ships will tune to the air spotter's signal. When the air spotter is working in conjunction with ground units, the appropriate fire coordination agency will exercise net control.

3.8.2.4 Shore Fire Control Party Local Net (VHF, FM Voice). This net provides direct communication between the NGF spot team and the NGF liaison team. Additionally, the net is used for communication between the NGF spotter and his spot team when they are separated. The NGF liaison team exercises net control.

3.8.2.5 Division/GCE Naval Gunfire Support Net (HF). This net is guarded by and provides radio communications among the division NGFO, NGLOs of subordinate regiments, and ships in general support of the regiments and division (see Figure 3-12). The division NGF officer exercises net control.

3.8.2.6 Division/GCE Radar Beacon Net (HF).

This net provides radio communication between division NGFO and each radar beacon team. The net will coordinate and control the operation of the radar beacon teams within the division. The division NGFO will exercise net control.

The division Naval Gunfire Support Net is used by the division NGLO and the regimental NGLO for day-to-day NGF support planning. It is also used by the regiments to request NGF air spotters and additional NGF support and by the regiments and division to assign missions to general support ships.

3.8.3 Wire-Multichannel Radio Circuits. Integrated wire-multichannel radio circuits employ combinations of wire and multichannel radio to provide users with telephone service. These users include all major headquarters (normally, regiment and above in a fluid situation and company/battalion and above in a static situation) and those ships sufficiently close to shore to allow VHF communications. When available, telephone is prefera-

ble to single channel nonsecure voice radio because of its ability to handle greater amounts of traffic. Integrated wire-multichannel radio circuits additionally facilitate conference-call type planning through numerous switching channels. This feature would be impossible over single channel voice radio because of distance, terrain obstacles, and/or radio net composition. Although multichannel equipment offers the user many advantages, he must remember that, when facing a sophisticated electronic warfare threat, the use of multichannel equipment can be especially dangerous because of its constant signal emission.

3.8.4 Small Scale Amphibious Operations. Small scale operations, a modified communications system may be employed. In the early stages of any operation, before landing force NGFS nets are opened, battalion NGF liaison teams and NGF ground spotters will guard the Naval Gunfire Control Net, and requests for general support and certain reports will be made on that net.

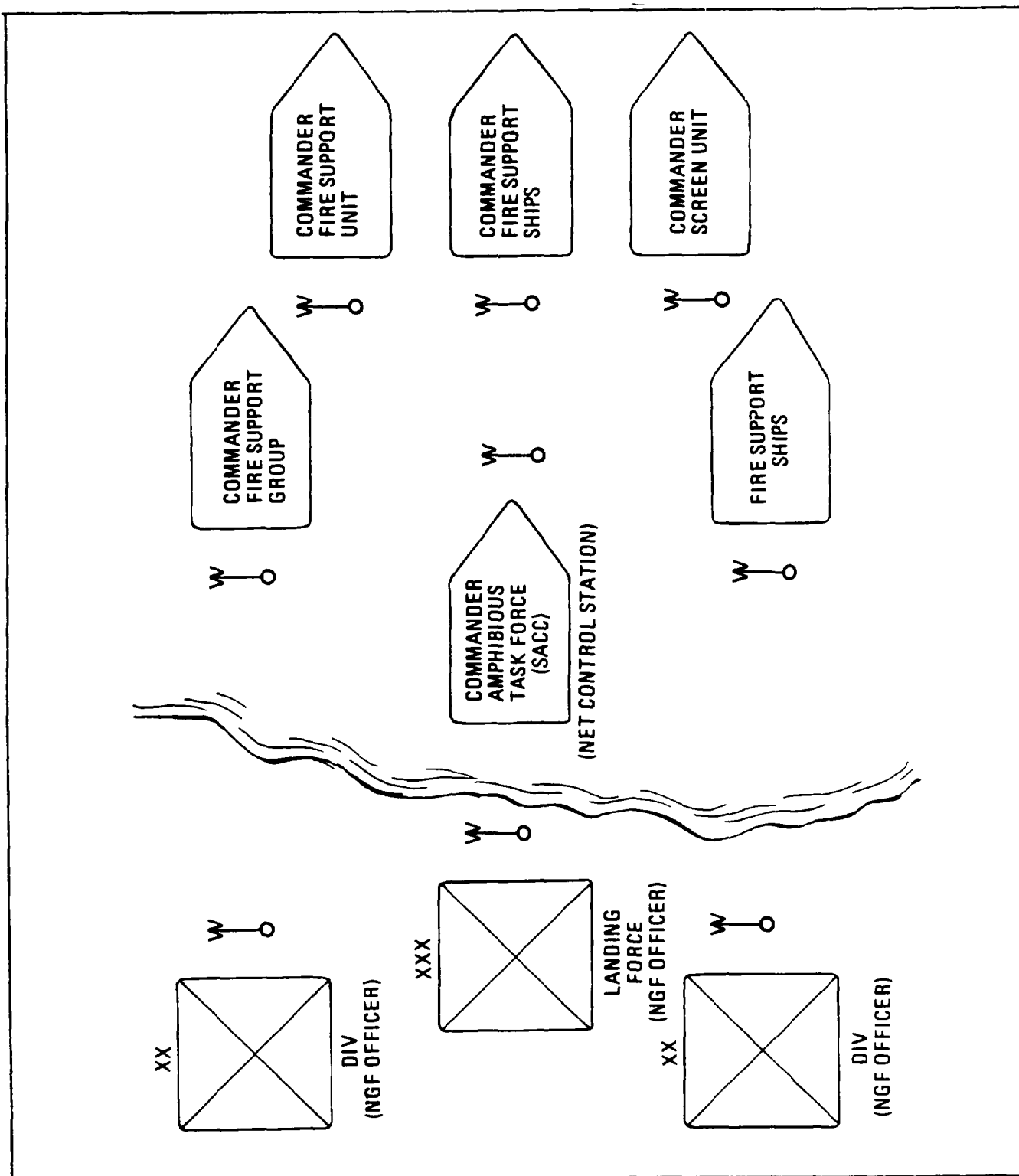


Figure 3-7. Naval Gunfire Control Net and Naval Gunfire Control Overload Net

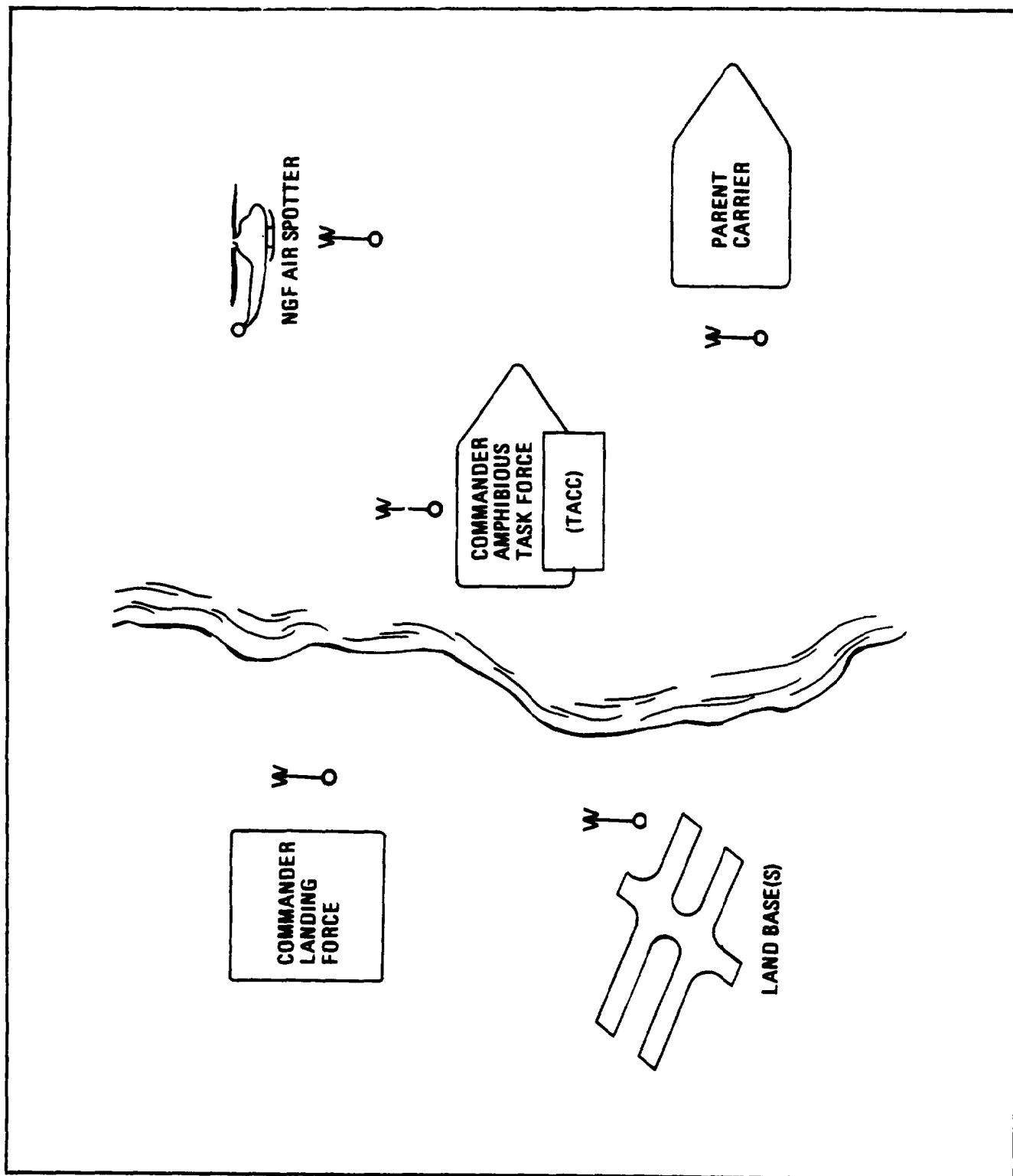


Figure 3-8. Ship Air Spot Reporting In and Out Net

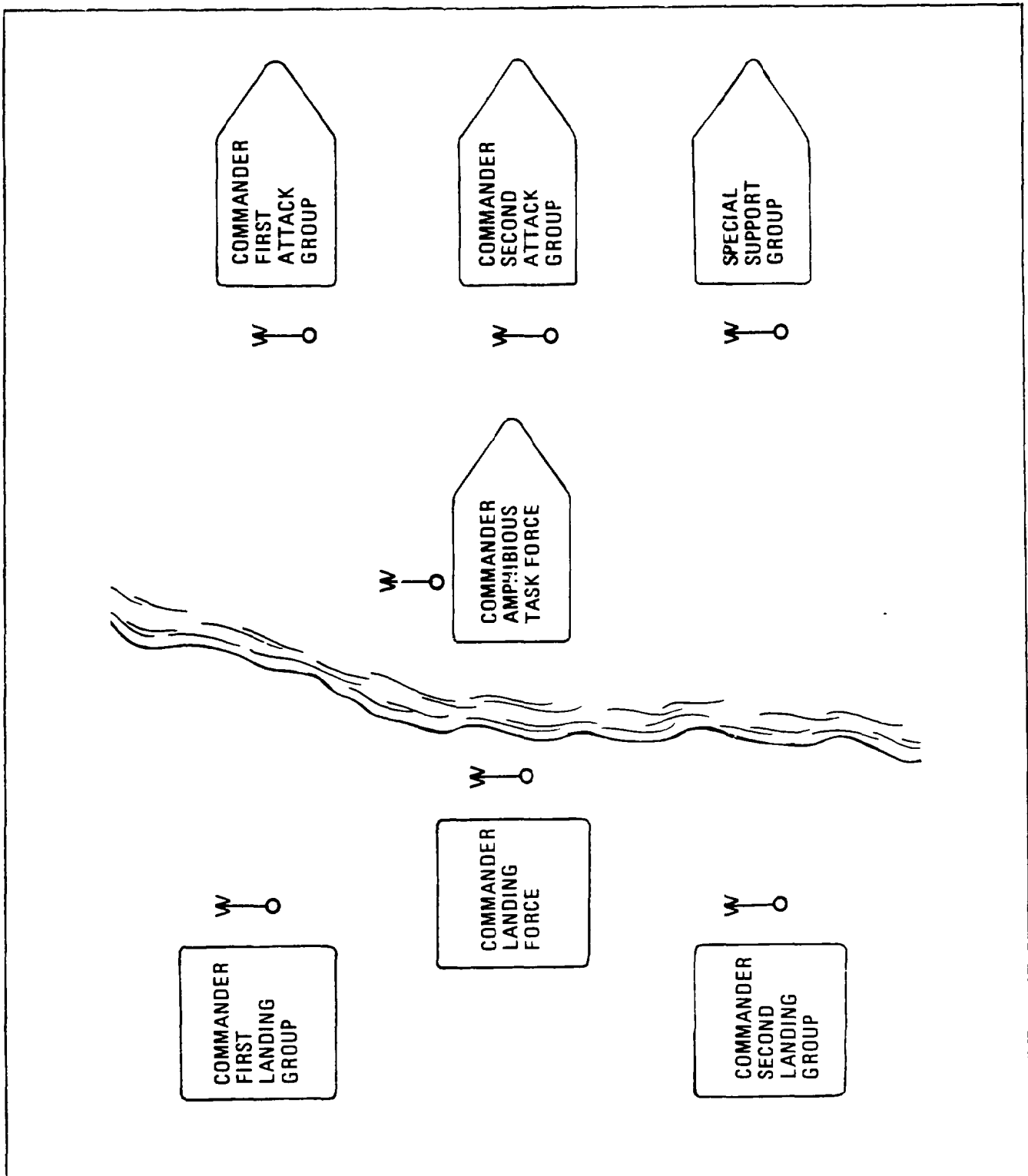


Figure 3-9. Overall Naval Gunfire Control Net

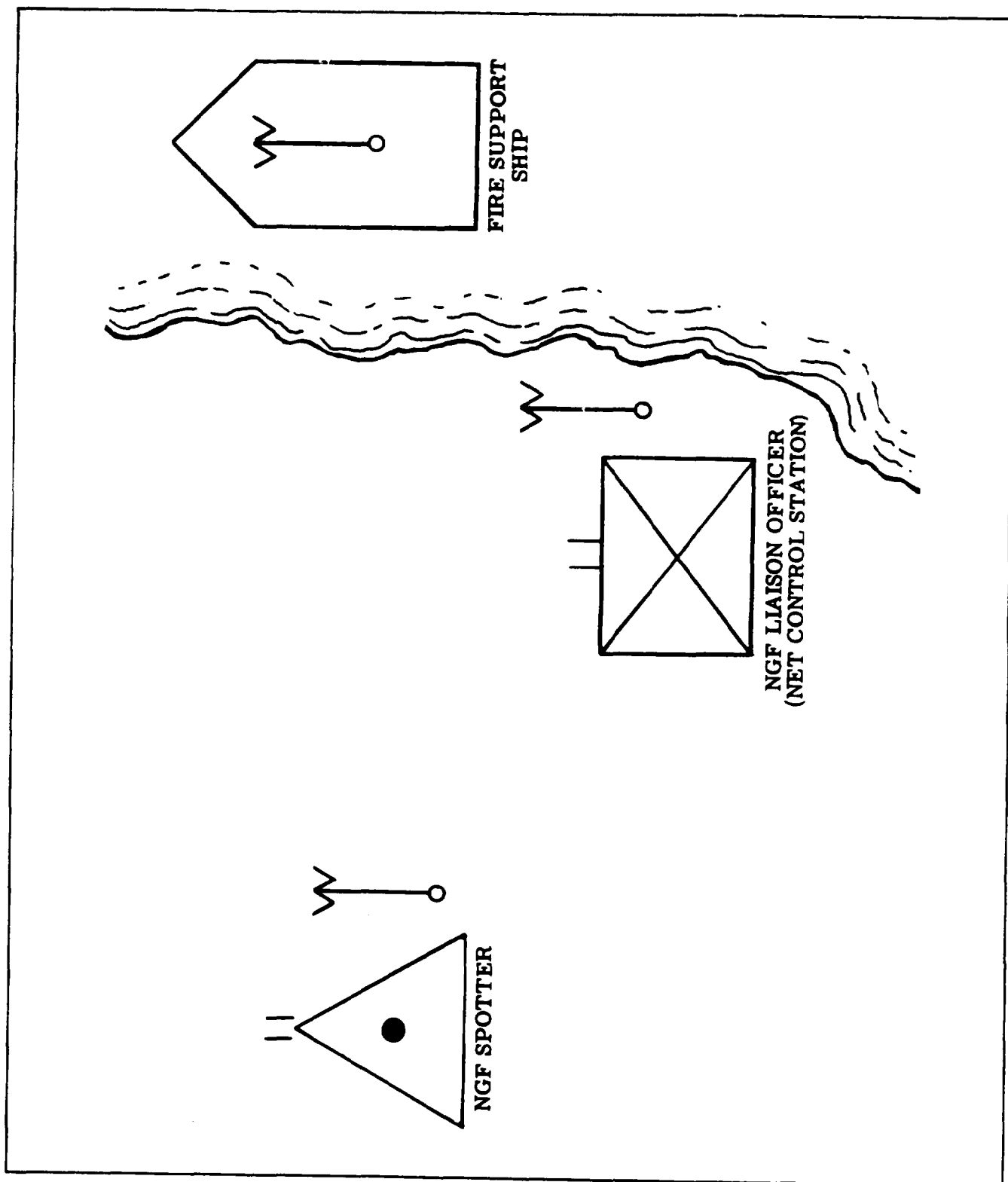


Figure 3-10. Naval Gunfire Ground Spot Net

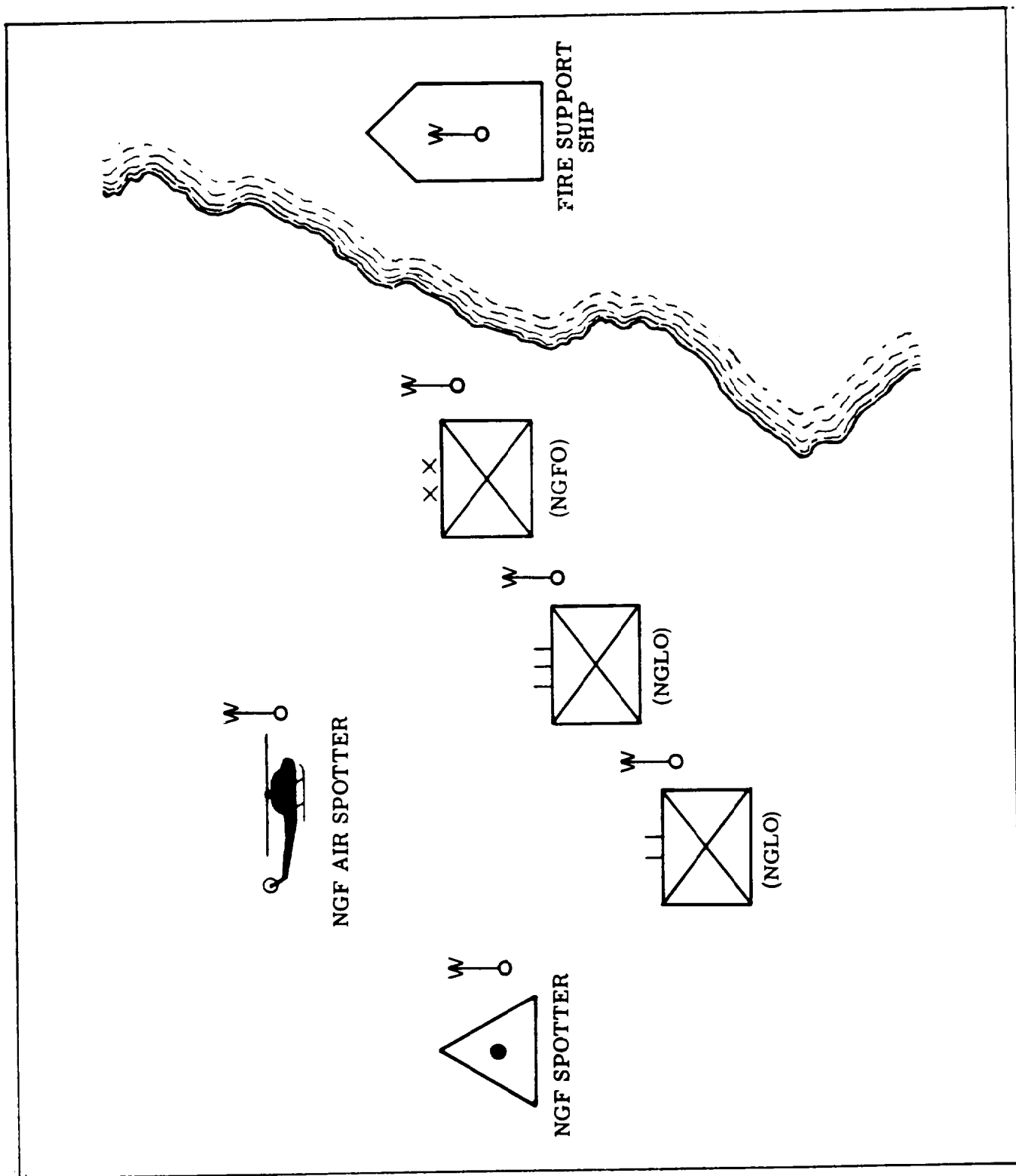


Figure 3-11. Naval Gunfire Air Spot Net

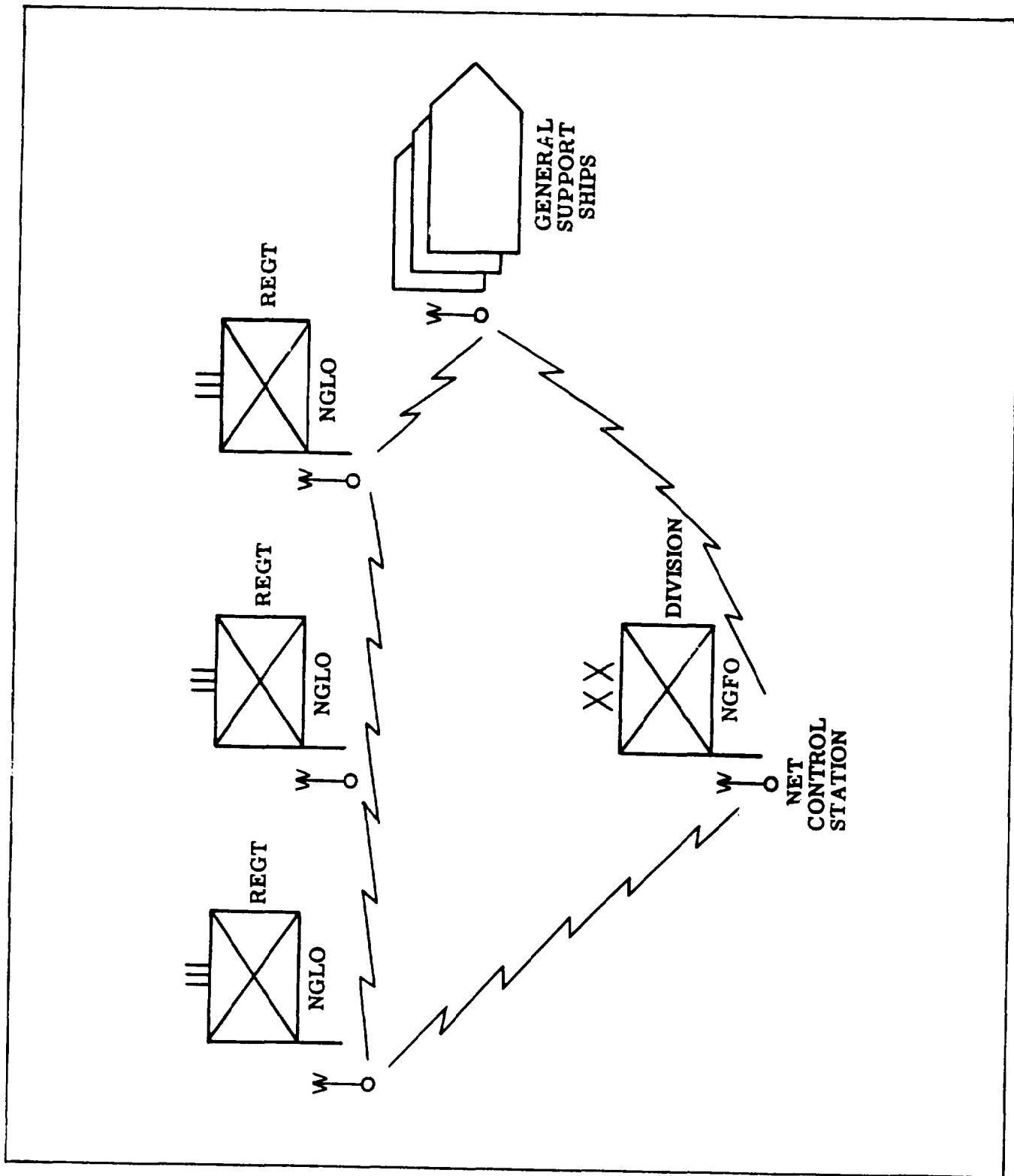


Figure 3-12. Division Naval Gunfire Support Net

PART II

Air Support

Chapter 4 — Concept and Organization

Chapter 5 — Planning

Chapter 6 — Execution

CHAPTER 4

Concept and Organization

4.1 SCOPE

The provisions of this chapter apply primarily to the tactical and operational aspects of air operations conducted en route to the objective area and in support of the amphibious operation while in the objective area. The ship-to-shore movement of troops by helicopter is described in NWP 22-3, Ship-to-Shore Movement.

Air support of the amphibious operation normally includes:

1. Gaining and maintaining air superiority, which is essential in the objective area. To achieve this, both offensive and defensive AAW operations are normally required. Since complete destruction of enemy air strength by offensive action is rarely attained, a well integrated defensive AAW system is imperative throughout the operation.
2. Isolating the battlespace and destroying the enemy's military forces and their supporting installations, together with disrupting enemy lines of communication.
3. Providing direct air support to friendly ground and sea forces, such as CAS, air reconnaissance, air transport of personnel and material, air evacuation, air rescue, illumination, mine clearing activities, and various supplementary air operations.
4. Providing a centralized air control system to enable the friendly force to coordinate and execute air operations.

Priorities for the employment of air support in amphibious operations are determined by the threat to friendly forces represented by enemy capabilities.

4.1.1 Capabilities

4.1.1.1 Observation. Aircraft are capable of maintaining continuous observation over large areas, since observation is relatively unrestricted in range and not greatly affected by variations in terrain. Aircraft are therefore most effective in reconnaissance of reverse slopes and deep valleys, and in the adjustment of supporting fire on targets in such areas.

4.1.1.2 Ability to Attack Defiladed Targets. Aircraft have an excellent ability to strike targets that are masked from artillery and NGF. Attacks may be made from any direction to take advantage of terrain features or enemy dispositions.

4.1.1.3 Speed and Maneuverability. The speed of aircraft enables them to concentrate rapidly over the objective area from dispersed bases or aircraft carriers, and deliver attacks with a great measure of surprise. Their speed and maneuverability provide a measure of protection from enemy fire and detection from enemy radar.

4.1.1.4 Destruction and Shock Effect. Aircraft are capable of applying heavy concentrations of firepower. Concentration of large numbers of aircraft in successive attacks can produce extensive destruction of enemy installations as well as heavy shock effect on personnel.

4.1.1.5 Neutralization. Because of the ability of aircraft to operate in dispersed formations with great speed and with a wide variety of weapons, they are capable of neutralizing large areas for limited periods of time.

4.1.1.6 Accuracy. Guided bomb, strafing, and rocket attacks may be conducted with great accuracy against targets that are well-defined. Conventional

bombing attacks, although somewhat less accurate, may be used very effectively against well-defined targets. Minimum-altitude attacks such as those normally employed in the delivery of napalm are particularly accurate.

4.1.1.7 Long Range. Aircraft can operate from bases located at a considerable distance from the objective and carry out attacks on enemy positions located beyond the range of other supporting arms.

4.1.1.8 Flexibility. The characteristics of supporting air units permits the use of small flights of aircraft against individual targets or the concentration of large groups of aircraft against targets of great extent or importance. The variety of armament that aircraft are capable of carrying permits flexibility of armament selection and renders nearly every type of enemy installation a potential target.

4.1.1.9 Morale Effect. The presence of friendly aircraft above the front lines is a great morale builder for friendly forces and has an adverse effect upon the enemy. An enemy cannot tell whether or not an aircraft is armed; its mere presence restricts his actions. In situations where it is not possible to fire, the execution of nonfiring runs may deter enemy activity.

4.1.2 Limitations

4.1.2.1 Weather and Low Visibility. Inclement weather, in addition to being a limiting factor in itself, aggravates all other limitations. Inclement weather at the airfield or en route to the target is no longer considered as a barrier to operations. The air effort used must be limited to navigational, traffic control, and direction facilities. Because inclement weather makes the location of targets more difficult and limits the types of attacks that can be made, it is a critical factor in the target area. With low ceiling and visibility, it is difficult to provide effective visual close support. The continuing development of electronic guidance systems will decrease the limitation imposed by bad weather and low visibility. It is possible to conduct all-weather CAS through use of the RABFAC. Such operations can be conducted by flights of certain aircraft types (for example, A-6, FB-111) and by mixed flights including those aircraft types when the associated radar beacon is employed by ground personnel.

4.1.2.2 Aircraft Endurance. Fuel capacity and distance to the target affect the amount of time aircraft can remain "on-station."

4.1.2.3 Aircraft Ordnance. The maximum weight of ordnance that an aircraft may carry may be decreased in order to carry more fuel or negotiate different runway lengths. Airborne alert aircraft are limited to the ordnance aboard at time of takeoff.

4.1.2.4 Communications. The effectiveness of air operations is dependent upon the efficiency of voice-radio nets in air-to-air and air-to-ground communications. The frequently heavy traffic on request nets coupled with normal technical communication problems imposes a continuing limitation on the efficiency of air operations.

4.1.2.5 Air Identification of Targets and Front Lines. The difficulty of identifying targets and front lines from aircraft may cause delay in the delivery of attacks, and may produce inaccurate results.

4.1.2.6 Ordnance Dispersion Patterns. Multiple-plane attacks generally have a larger impact pattern than single-plane attacks. The close control and precise adjustment required when such attacks are made near friendly troops frequently prolong the time necessary to complete the attack.

4.1.2.7 Direction of Attack. Air attacks are more accurate in deflection than in range. Consequently, attacks are made parallel to friendly front lines whenever possible. The presence of large salients and reentrants in front lines requires occasional restrictions or suspensions of air attacks, particularly when the other supporting arms are employing influence fuzes. The examination of each air mission to determine whether imposition of such restrictive plans is necessary delays the execution of air attacks.

4.1.2.8 Space-Time Restrictions

4.1.2.8.1 Time. The interval of time between a troop unit's request for air support and the delivery of the support attack is a critical factor in the effectiveness of CAS. The coordination of the air mission with the maneuver and supporting fire of the troops, the briefing of the pilots, and the location of the target by the flight leader is a time-consuming process. Since the value of the air mission may depend on the request-delivery interval, it is important that this time interval be as short as possible. The request-delivery interval can be lessened by maintaining aircraft constantly on station. This method, however, may be expensive in terms of numbers of aircraft required and fuel used. It may be desirable to maintain jet support aircraft on a deck or runway

alert. The minimum attainable request-delivery time is normally 5 to 10 minutes. For effective close support, this interval normally must be less than 30 minutes for an immediate mission.

4.1.3 Categories of Air Operations. The large scale amphibious landing is affected by three categories of air operations; strategic, operational, and tactical.

4.1.3.1 Strategic Air Operations. These operations are conducted as part of the overall military strategy. They are the application of military force to secure policy objectives. Strategic air operations are directed against vital targets. These operations produce progressive destruction and disintegration of the enemy's war-making capacity.

4.1.3.2 Operational Air Operations. These operations link strategic and tactical air operations, use tactical results to attain strategic objectives, and project power well in advance of close operations in order to shape events in time and space.

4.1.3.3 Tactical Air Operations. These operations are conducted as a part of the immediate naval campaign and have a direct relationship to the overall offensive campaign. Tactical air operations include:

1. Covering air operations conducted outside the objective area, but directly affecting the amphibious operations by providing protection for the ATF en route to and in the objective area.
2. Preliminary air operations conducted to obtain information, gain air superiority, isolate the objective area, reduce hostile defenses, and disrupt the enemy's morale.
3. Supporting air operations are directly related to the overseas movement and offensive operations of the ATF and are controlled within the amphibious objective area by the CATF. Supporting air operations may include preliminary air operations.

4.2 AMPHIBIOUS TACTICAL AIR CONTROL SYSTEM

In an amphibious operation, a single coordinated tactical air control system is developed which is capable of controlling and coordinating all air operations within an assigned area of responsibility. ATACS is the organization and equipment necessary to plan, direct, and control tactical air operations within this assigned area and to coordinate air operations with other services. It is composed of control agencies and communication/electronic facilities that provide the

means for centralized control and decentralized execution of missions. Two separate, but similar, subsystems comprise ATACS: one afloat and one ashore. The NTACS is the afloat system and the MACCS is the ashore system. Both systems can perform the same basic functions; they differ in the type of equipment used and how they are organized. The ATACS controls aviation in coordination with ground and/or naval forces to:

1. Gain and maintain air superiority
2. Prevent movement of enemy forces into and within the objective area and to seek out and destroy these forces and their supporting installations
3. Join with ground or naval forces on operations within the objective area to assist directly in attaining the immediate objective.

The CATF is responsible for the ATACS organization and its employment. He accomplishes this through the TAO who uses NTACS to coordinate, integrate, and regulate all aircraft supporting the ATF/ATG prior to passing control ashore. As the amphibious operation develops and necessary MACCS facilities become operational ashore, responsibility for control and coordination may be passed, in increments, to the CLF, until finally all responsibility for controlling and coordinating air operations ashore is vested in him. This responsibility will be exercised by the LF ACE commander.

4.2.1 Navy Tactical Air Control System. The following ATF organizations comprise the NTACS (see Figure 4-1):

1. Navy TACC — The principal air operations installation afloat from which all aircraft and air warning functions of tactical air operations are controlled.
2. TADC — An air operations installation, under the overall control of the Navy TACC/Marine TACC, from which aircraft and air warning functions of tactical air operations in an area of responsibility are directed.
3. HDC — An air operations installation under the overall control of the Navy TACC, TADC, or DASC (ashore), as appropriate, from which control and direction of helicopter operations are exercised.

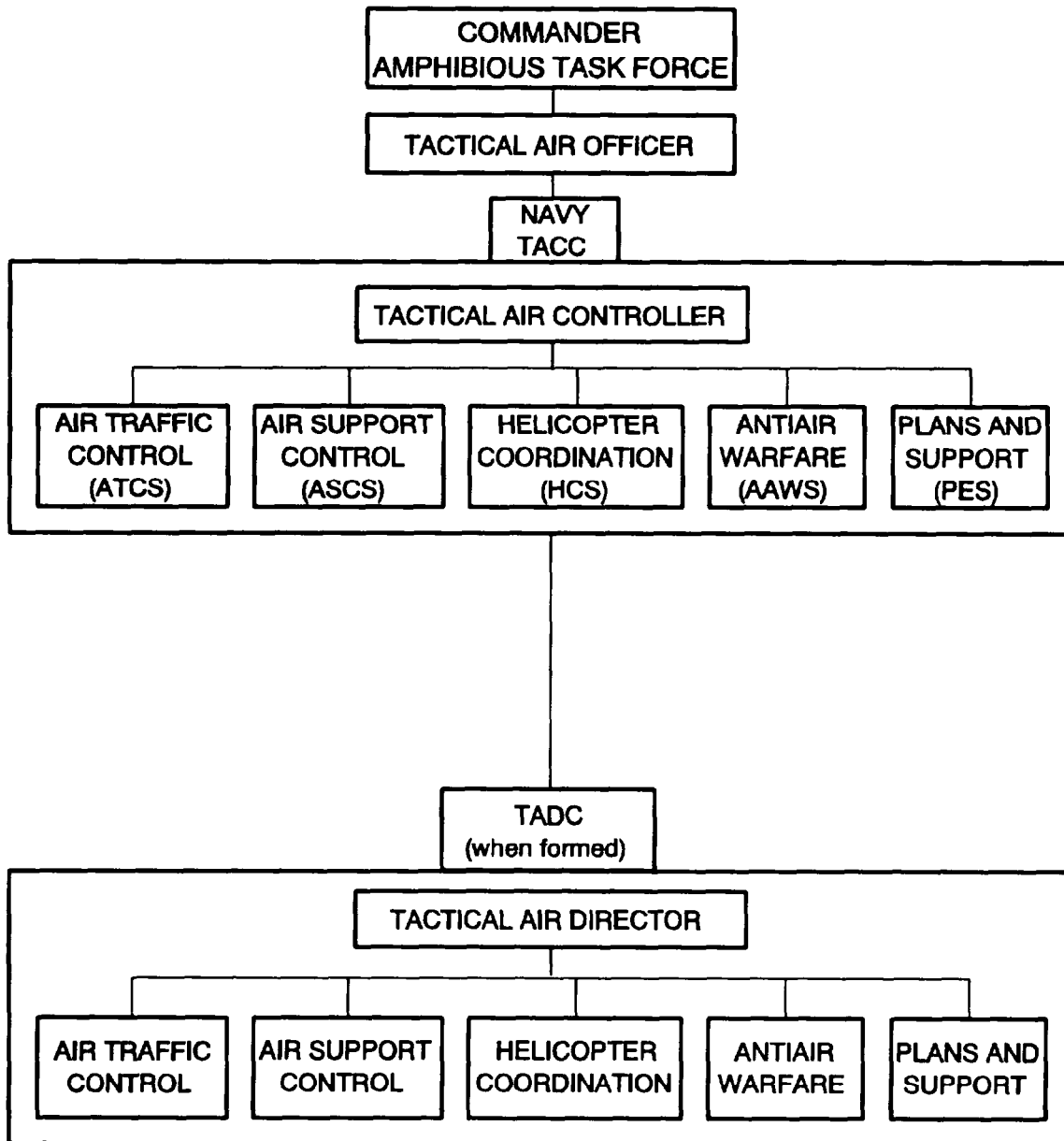


Figure 4-1. Navy Tactical Air Control System

4.2.2 Navy Tactical Air Control Center. The Navy TACC is the primary air control agency within the AOA or designated area of operations from which all air operations supporting the ATF are controlled. Normally established aboard the ATF flagship, the Navy TACC controls air support and AAW means which include fighter and attack aircraft, SAM, AAA, and air warning facilities. Whenever there are two or more afloat air control agencies functioning within the objective area, one of the agencies is designated as the Navy TACC and the other air control agencies are designated as TADCs. The TADCs operate under the Navy TACCs control within specific sectors of responsibility in the objective area.

4.2.2.1 Command of Navy TACC. The TAO, an aviation officer under the CATF, coordinates the planning and exercises coordination and control responsibility over all phases of AAW, helicopter coordination, and air support for an amphibious operation. He establishes the NTACS and is responsible for the overall operation of the Navy TACC aboard the flagship.

4.2.2.2 Functions of Navy TACC. Normal Navy TACC functions are to:

1. Make the most effective use of every aircraft assigned to support the ATF.
2. Ensure an integrated defense for ATF ships and troops against:
 - a. Enemy air attack, in conjunction with the AAWC, by monitoring, evaluating, and reviewing air threats to the force, making weapons assignments, employing aircraft on CAP, using airborne electronic equipment, and by coordinating the various AAW forces activities. Actual control of AAW aircraft may be delegated to the assigned AAWC to provide AAW protection to the force.
 - b. Enemy submarine attack, in conjunction with the ASWC, by employing ASW aircraft on antisubmarine patrol (HS, HSL, VP, and VS) and coordinating their operations with those of surface craft operating on ASW missions. Actual control of ASW aircraft may be delegated to the assigned ASWC to provide ASW protection to the force.
 - c. Enemy surface attack, in conjunction with the ASUWC, by controlling and coordinating the activities of all aircraft in the objective area with friendly surface forces. Actual control of ASUW aircraft may be delegated to the as-

signed ASUWC to provide ASUW protection to the force.

3. Provide CAS, and other air support as requested by the LF, giving pilots complete and timely briefings on the targets to be attacked, types of strikes desired, manner in which attacks are to be made, and the location of friendly front-line positions.
4. Consolidate and coordinate air support requirements with supporting air forces, supplying the latest intelligence to carrier- and land-based air forces scheduled to execute support missions.
5. Monitor and coordinate all helicopter operations.
6. Exercise coordination and/or control of all air traffic in the AOA or area of operations to protect friendly aircraft from collision, provide air navigational assistance, provide assistance to aircraft in emergency situations, and assist in early identification of enemy aircraft in the area.
7. Provide ASC to advise the SAC/FFC of close air support assets available, including weapons load, fuel status, and other pertinent data which will aid him in supporting arms assignment/coordination.

4.2.2.3 Organization of Navy TACC. The Navy TACC is operated by a TACRON. The TAC is the officer (aviator/NFO) in charge of all operations of the Navy TACC. He is responsible to the TAO for the control of all aircraft and air warning facilities within the objective area. He functions as the TAO whenever a TAO is not embarked or designated. Prior to passage of control ashore, the Navy TACC is the principal air control agency. The responsibilities of the five sections of the Navy TACC are:

1. The ATCS exercises control and coordination of all air traffic entering, operating within, or traversing the AOA of assigned area, and the coordination of SAR operations.
2. The ASCS exercises operational control and coordination of all rotary and fixed-wing aircraft assigned to troop support missions.
3. The HCS exercises coordination of helicopter operations conducted by HDCs and other subordinate control agencies and the control of specific helicopter missions when required.
4. The AAWS exercises coordination and control of all AAW operations including assigned aircraft, AAA, SAM, and air warning systems in the

designated area of operations. Specific duties and command relationships are specified in NWP 32.

5. The PSS provides all communications support, conducts current and future planning, and assembles and distributes current air operations data and reports.

4.2.2.4 Operation of Navy TACC. The Navy TACC is functionally organized into five sections as independent entities to accomplish the assigned mission and to provide the most effective use and integration of air assets.

4.2.2.5 Equipment of Navy TACC. Tactical data system consoles and associated equipment, control tables, status boards, plotting boards, and communication equipments are permanently installed in the Navy TACC, air operations center, and the SACC. In ships not having a tactical data system installed, some air control functions are carried out in the CIC and associated spaces.

4.2.3 Marine Air Command and Control System. The following landing force organizations comprise the MACCS (see Figure 4-2):

1. Marine TACC — The principal LF air control agency from which all aircraft and air command functions of air operations in the objective area, including AAW, but not ASUW, ASW, sea mining, or mine countermeasures operations, are coordinated.
2. TADC (ashore) — same functions as the afloat TADC.
3. DASC — The principal landing force air control agency subordinate to the Marine TACC which controls direct air support and assault support operations.
4. TAOC — The principal operational component subordinate to the Marine TACC which is designed to control and direct AAW operations in assigned sectors.
5. TACP — An aircraft control agency assigned to the LF assault units that establishes and maintains facilities for liaison and communications between assault units and air control agencies and controls air support missions ashore.
6. FACP — An aircraft control agency subordinate to the TACP which, from a forward ground or

airborne position, controls aircraft engaged in CAS of ground troops.

4.2.3.1 Marine TACC. Although it is equipped to discharge all the functions of the Navy TACC, the Marine TACC initially functions as a TADC, and normally will be assigned to its initial responsibility only those tasks that relate to the control of aircraft supporting the LF such as CAS, helicopter operations, and front-line reconnaissance.

When the ground unit's TACPs are established ashore, they request CAS from the Navy TACC, DASC, or TADC afloat. As the situation ashore progresses and the Marine TACC becomes more complete, responsibility for control of AAW and air warning generally will be passed ashore. Until full control is assumed ashore, the Marine TACC acts as a TADC under the Navy TACC.

4.2.3.1.1 Command of Marine TACC. The Marine TACC is the operational command post of the ACE commander. The ACE commander is responsible to the CLF (MAGTF commander) for control and coordination of air operations within the CLFs area of operations when control of these operations is passed ashore. He is responsible for the overall functioning of the MACCS.

4.2.3.1.2 Functions of Marine TACC. When control is passed ashore, the Marine TACC performs every function which the Navy TACC was responsible, except those functions unique to defending the naval force afloat against enemy submarines and surface ships. These functions remain under the Navy TACC's control which now acts as a TADC under the control of the Marine TACC's.

4.2.3.1.3 Organization of Marine TACC. The Marine TACC is equipped and operated by personnel from the ACE of the LF. Some key members are:

1. The ACE commander who is responsible for the conduct of the entire air effort of the LF aviation.
2. The Senior Watch Officer (SWO) who is responsible for the overall functioning of the Marine TACC (current and future operations sections) and is directly responsible to the ACE commander. The SWO coordinates the ACE commander's battlestaff.
3. The Intelligence Watch Officer (IWO) who is responsible to the SWO for maintaining an accurate display of the enemy situation, both air and ground. Supporting the current operations section, he also advises the future operations section on

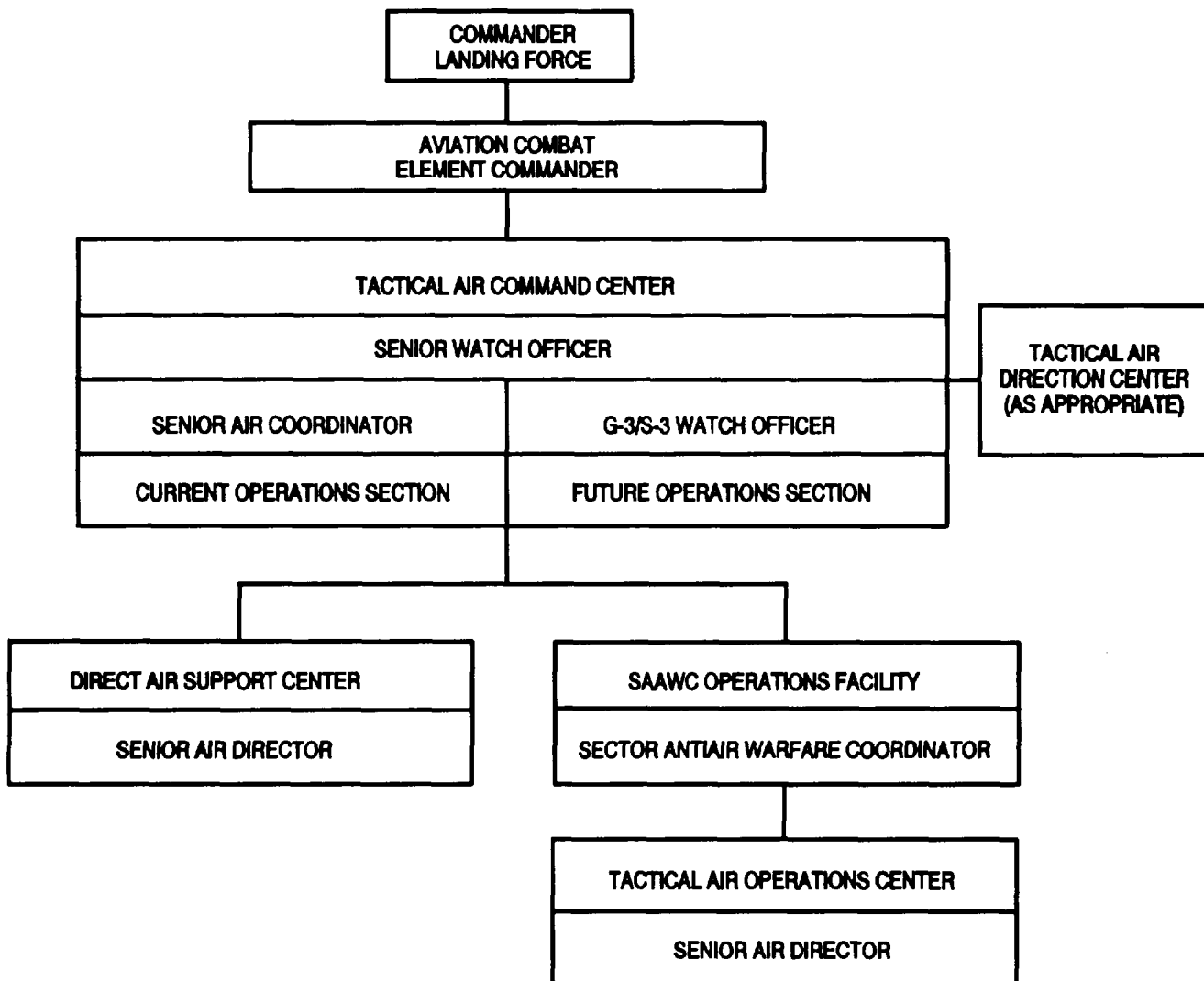


Figure 4-2. Marine Air Command and Control System (MACCS)

possible enemy courses of action as a result of current operations.

4. The Senior Air Coordinator who is the senior MACCS watchstander in the current operations sections. He is responsible for the execution of current operations through the MACCS.
5. The Air Defense Coordinator (ADC) who is responsible to the Senior Air Coordinator for coordinating air defense within the MAGTF area of operations (i.e., landward sector).
6. The Assault Support Coordinator (ASC) who is responsible to the Senior Air Coordinator for coordination of offensive air support and assault support within the MAGTF area of operations.
7. The Interface Coordination Officer (ICO) who is responsible to the Senior Air Coordinator for ensuring accurate situation displays and orderly functioning of all data links and data interfaces.
8. The Assault Support Watch Officer (ASWO) who is responsible to the Senior Air Coordinator for matching assault support assets with all requirements.
9. The Tactical Air Watch Officer (TAWO) who is responsible for matching fixed-winged assets with requirements.
10. The G-3/S-3 watch officer who is the senior watch officer in the future operations section. He is responsible to the SWO for all matters relating to the prosecution of future air operations. He provides oversight of the future operations section.
11. The Fixed-Wing Tasker (FWT) who is responsible to the G-3/S-3 watch officer for detailed planning and tasking of fixed-wing aircraft.
12. The Rotary Wing Tasker (RWT) who is responsible to the G-3/S-3 watch officer for detailed planning and tasking helicopters.
13. The Weapons Employment Officer (WEO) who advises the G-3/S-3 watch officer on the best utilization of aviation weapons.
14. The plotter who records and monitors assigned frequencies and are responsible for the display of friendly and enemy plots, and all other pertinent information received. They are required to be familiar with all types of plots used and the opera-

tional brevity codes found in the Allied Communication Publication (ACP).

15. Status board keepers, monitor assigned frequencies and display all information required. They must be familiar with all types of status boards used in the TACC ashore and operational brevity codes.

4.2.3.2 Direct Air Support Center. The DASC is the principal air control agency subordinate to the Marine TACC for the control of direct air support and assault support operations. The DASC coordinates direct air support missions controlled by on-the-scene air controllers (either on the ground or airborne). It is normally the first MACCS air control agency established ashore during an amphibious operation. The DASC is typically collocated with the senior FSCC within the GCE. The DASC is organized to be able to displace by echelon and continue operations on a limited basis. It can provide current intelligence information to the Navy TACC or Marine TACC for rapid dissemination when received from aircraft. In support of the landing force, the DASC:

1. Receives ATO from the Navy TACC or Marine TACC and coordinates preplanned direct air support
2. Receives, processes, and coordinates requests for immediate air support
3. When delegated authority by the ACE commander and in coordination with the senior FSCC, adjusts preplanned schedules and diverts airborne assets as necessary
4. Coordinates the execution of direct air support missions with other supporting arms through the appropriate FSCC and, as required, with the appropriate MACCS agencies
5. Receives and disseminates pertinent tactical information reported by aircraft performing direct air support missions
6. Provides aircraft and other air control agencies with advisory information to assist in the safe conduct of flight
7. Monitors, records, and displays information on direct air support missions
8. Maintains friendly and enemy ground situation display, as necessary, to coordinate direct air support operations

9. Provides aircraft and other MACCS agencies with information concerning the friendly and enemy situation

10. Refers unresolved conflicts in supporting arms to the senior fire support coordinator

4.2.3.3 Sector Antiair Warfare Coordinator Operations Facility. The SOF is normally collocated with (or integrated into) the TAOC. Representatives from various MACG units may man the SOF. The SAAWC is the ACE commander's air defense battle manager for his assigned sector. The SAAWC is normally referred to as the LF SAAWC or Marine SAAWC to differentiate it from the Navy SAAWC. The SAAWC coordinates and manages all active air defense weapons (aircraft and SAWs) within his assigned sector. The SAAWC and his staff provide the interface between TAOC controllers and ACE commander's battlestaff.

4.2.3.4. Tactical Air Operations Center. The TAOC is a subordinate operational component of the MACCS designed for control and direction of AAW operations in assigned air sectors. The mission of the TAOC is to detect, identify, and control intercept of hostile aircraft and missiles, and to provide navigational assistance to friendly aircraft in the accomplishment of air support missions. The TAOC also controls all airborne interceptor operations and coordinates all surface-to-air weapons fires within its sector. TAOCs are operated by personnel from the LF ACE. Under the overall control of the Marine TACC, the TAOC:

1. Recommends employment of assigned weapons and surveillance means
2. Recommends air defense sectors, subsectors, and weapons employment zones for itself and component elements
3. Deploys sensors and communications systems to provide air surveillance
4. Detects, identifies, and classifies all aircraft within its assigned sector
5. Displays and disseminates appropriate air/ground information to designated adjacent, higher, and subordinate agencies (such as the Marine TACC, another TAOC, DASC, Marine air traffic control detachments, surface-to-air weapons units, and aircraft)
6. Selects and assigns appropriate weapons to engage and destroy the enemy air threat

7. Controls the fires of subordinate air defense elements

8. Functions as an alternate Marine TACC when directed for limited or designated periods of time

9. Interfaces with adjacent and higher air defense agencies

10. Manages air defense resources

11. Coordinates and executes emission control conditions in the assigned sector.

4.2.3.5 Marine Air Traffic Control Detachments. MATCDs are the primary terminal air control organization within the MACCS. The MATCD is organized and equipped to satisfy ATC requirements for various forward operating bases (FOB) ranging in size from a main air base capable of handling theater lift assets to an air site used to recover/launch fully loaded and armed aircraft in remote areas. The MATCD provides friendly aircraft with continuous all-weather radar approach, departure, and en route ATC services within assigned airspace. MATCDs air surveillance data is integrated into the LF's integrated air defense system.

4.2.3.6 Tactical Air Control Party. The TACP is the aircraft control agency assigned to assault elements of the LF. TACPs establish and maintain facilities for liaison and communications between supported units and appropriate air control agencies; inform and advise the ground unit commander on the employment of supporting aircraft; and request and control air support missions. There are two types of TACPs: the first type is organic to the infantry battalion, and the second type is organic to each of the infantry regiments and division. The principal difference between the two types of TACPs is that the battalion TACP has two FAC parties (FACPs) while the regiment and division TACPs have none. TACPs are organic to the Marine division: one at the division command post; one at each of the maneuver regimental headquarters; and one at each infantry battalion. Each TACP is trained and equipped to provide the necessary communications, liaison, advice, and direction of air support missions for the supported commander. Each TACP is provided with vehicular-mounted and man-transportable radio equipment to provide the necessary communications with the DASC, aircraft, other TACPs, and parent organization. TACPs can also be equipped with electronic equipment for controlling all weather CAS. All officers in the TACPs are aviators or NFOs and the enlisted personnel are communicators.

The TACP functions are to:

1. Provide liaison and communications between the commander of the ground unit to which assigned and the appropriate air control agency.
2. Provide the commander of the ground unit with current information on the employment and availability of aircraft assigned to the support of his unit.
3. Advise the ground unit commander and his staff on matters concerning the employment of aviation assets.
4. Prepare and forward requests for air support in accordance with instructions specified in the MAGTF air employment plan.
5. Provide staff estimates in the unit's air support requirements.
6. Prioritize and resolve duplication and conflicts of air support requests.
7. Advise the commander of the AAW situation.
8. Coordinate with air defense units as required.
9. Relay pertinent information to the SAC, FFCC, FSCC, and/or DASC as appropriate.
10. Exercise control of aircraft during the terminal phase of CAS missions to ensure the accuracy of weapons delivery and to minimize the danger to friendly troops.
11. Make appropriate recommendations concerning fire support coordination measures as they relate through air support channels.
12. Keep the target intelligence officer or supported unit S-2 advised of all target information received through air support channels.
13. Maintain an air situation map for posting information regarding air support rendered and enemy intelligence information as well as potential air support targets, assigned missions, and SEAD requirements. Fire support coordination measures are drawn on the map for immediate reference.
14. Perform other fire support coordination duties as required.

4.2.4 ATF/LF Personnel for Planning and/or Conduct of Air Operations. In addition to the control agencies outlined above, the following organizations/personnel are provided in the planning and/or conduct of air operations.

4.2.4.1 Staff Air Officers. These officers are assigned to divisions, attack forces, and higher echelons. Their duties are to:

1. Advise the commander and the staff on all air matters.
2. Estimate the unit's requirements for air support and, in accordance with instructions from the commander, prepare air support requests.
3. Prepare the air annex to the operation plan when required.
4. Make recommendations concerning the employment of aircraft.
5. Maintain liaison with supporting air organizations.

4.2.4.2 Combat Information Center. The agency in a ship or aircraft manned and equipped to collect, display, evaluate, and disseminate tactical information for the use of the embarked flag officer, commanding officer, and certain control agencies. Certain control, assistance, and coordination functions may be delegated by command to the CIC.

4.2.4.3 Tactical Air Coordinator (Airborne). An officer who coordinates, from an aircraft, the action of combat aircraft engaged in close support of ground or sea forces.

4.2.4.4 Forward Air Controller. An officer (aviator/NFO) member of the TACP who, from a forward ground or airborne position, controls aircraft engaged in close air support of ground troops.

4.2.4.5 Assault Support Coordinator (Airborne). An experienced aviator who has in-depth knowledge of the MACCS, assault support, airspace management, fire support coordination, and fixed- and rotary-wing capabilities. The ASC(A) is an airborne extension of the DASC or HDC used to support assault support operations.

4.2.4.6 Forward Air Controller (Airborne). A specifically trained and qualified aviation officer to perform the dual tasks of conducting air reconnaissance/surveillance

and of exercising control from the air of aircraft engaged in close air support of ground troops.

4.2.4.7 Tactical Air Observers. These are officers trained as air observers whose function is to observe from airborne aircraft and report on movement and disposition of friendly and enemy forces, on terrain, weather, and hydrography, and to execute other missions as directed. Artillery and NGF air observers also have the capability of performing this mission.

4.2.4.8 Air Intercept Controllers. The air intercept controllers in the CICs will control defensive aircraft assigned to them by the AAW controller in accordance with the air operation plan.

4.2.4.9 Helicopter Liaison Officer. He is an experienced helicopter pilot assigned to commander, anti-air warfare staff to assist and maintain close liaison with the Navy TACC/HDC and the TADC/Marine TACC concerning employment of helicopters in ship-to-shore operations, logistic support (resupply missions, air evacuation of casualties, wire laying, and search and rescue flights), and special call missions.

4.2.5 Attack Group or Advance Force TADC. It is located in the appropriate flagship when such forces are organized.

4.2.5.1 Functions. The functions of a TADC are the same as those of a Navy TACC except that they are limited to the areas of responsibility of the respective commander. A TADC is prepared to assume the functions of a Navy TACC if required.

4.2.5.2 Organization. The advance force TADC is operated by a TACRON, augmented by flagship personnel. The organization and the principal personnel and their duties are the same as those of the Navy TACC with the coordinators and controllers designated as directors. The equipment of a TADC is similar to that of a Navy TACC.

4.2.6 Supporting Air Control Ships. The radar air control capabilities of selected surface combatants are often employed to augment the air control functions of the Marine TACC. When assigned to the ATF and employed in tactical air control, the surface combatant is normally designated a TADC. Its normal functions include direct radar air control over friendly aircraft in its assigned sector (e.g., tactical air traffic control, CAP/SUCAP control, and positive aircraft identification), AAW and air warning functions. These responsibilities are carried out as an agency subordinate to the Marine TACC by ship's CIC personnel. Specific TADC functions will vary under differing operational demands

and in accordance with individual ship's equipment available.

4.2.7 Relationship of Air Control Agencies, Afloat and Ashore. The relationship between the control organization afloat and the control organization ashore generally corresponds to the relationship that exists between the commander afloat and the commander ashore for whom these agencies control air support operations. TACPs are landed with landing force assault elements and operate by requesting air support from the appropriate agency and by directing aircraft providing support. During the early part of the assault, Navy TACC controls all aircraft supporting the operations and operating in the objective area during this period. After CLF has established his headquarters and tactical air control agencies ashore, control of support aircraft is usually passed to him by CATF and is exercised through the landing force TADC. After control of all air operations has been passed ashore, the Marine TADC becomes the Marine TACC and the control agencies afloat may revert to a TADC or assume a standby status.

4.2.8 Command Relationships During the Transfer of Air Control from Afloat to Ashore.

Command relationships during the transfer of air control ashore vary with the tactical situation. Provision for shifting the various phases of air control must be flexible to meet sudden situations which may arise (such as a nuclear burst). Normally, after CLF has moved ashore and has established facilities there for a Marine TACC the control of tactical aircraft may be passed ashore at a time mutually established by CATF and CLF. Partial and/or temporary control of various phases of air operations may be based alternately ashore or afloat by mutual agreement of CATF and CLF. After complete air control has been passed ashore, the Navy TACC may perform TADC functions and monitor air control frequencies being used ashore. In the event conditions require the air control to be transferred back afloat, the Navy TADC will be standing by for immediate resumption of operations as the Marine TACC. (See Figures 4-3 through 4-5).

4.2.9 Relationship of Air Control Agencies to Aircraft Units. Aircraft units supporting an amphibious operation may be a part of the ATF or may be part of another force operating in support of an amphibious operation. In both cases, they are controlled by the ATF air control organization. Aircraft entering designated zones of responsibility come directly under the control of the amphibious air control agency exercising control over those zones. The designated agency controls all aircraft operating in or passing through the objective area, regardless of mission or origin.

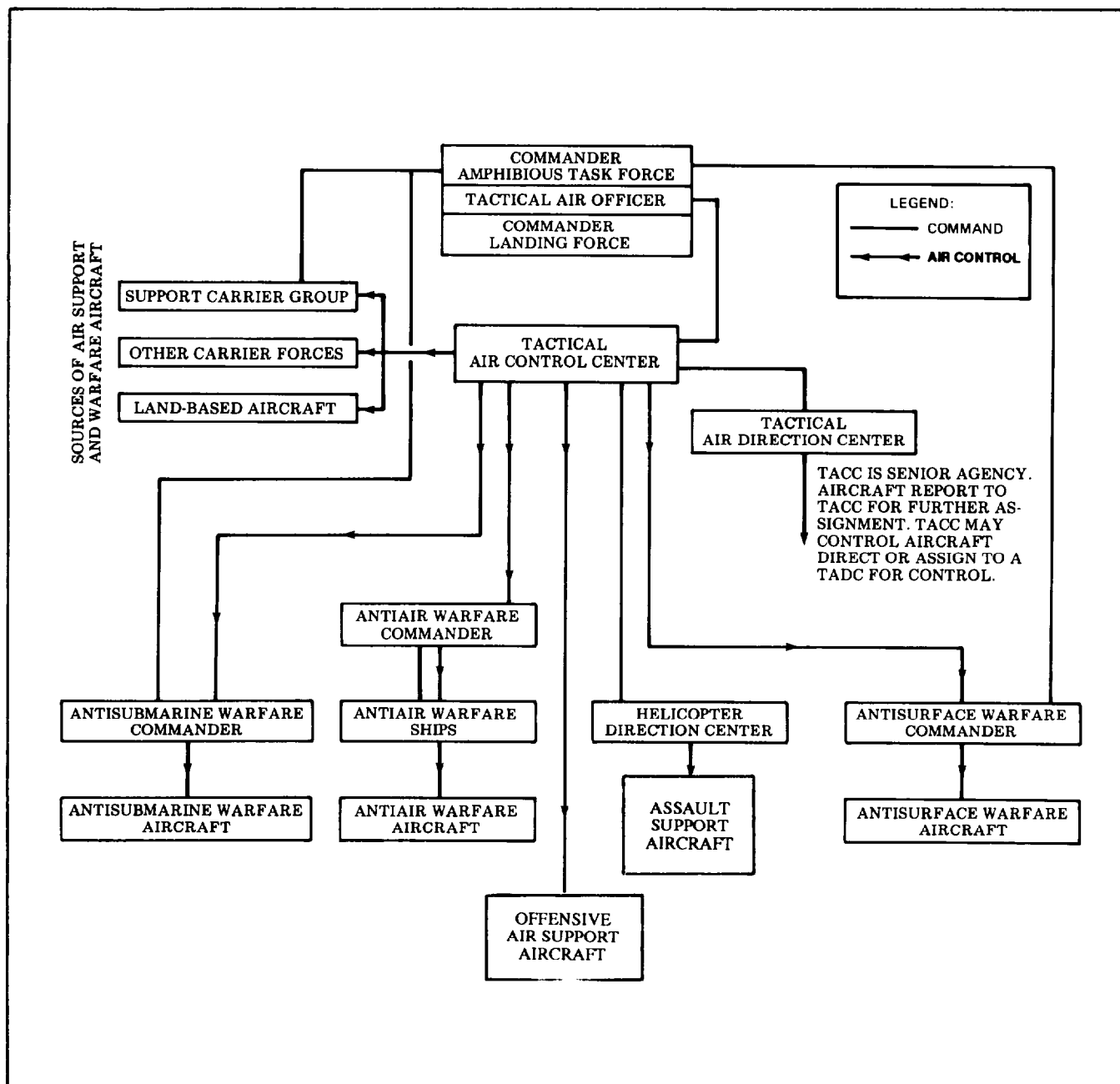


Figure 4-3. Tactical Air Control Before Passage of Control Ashore

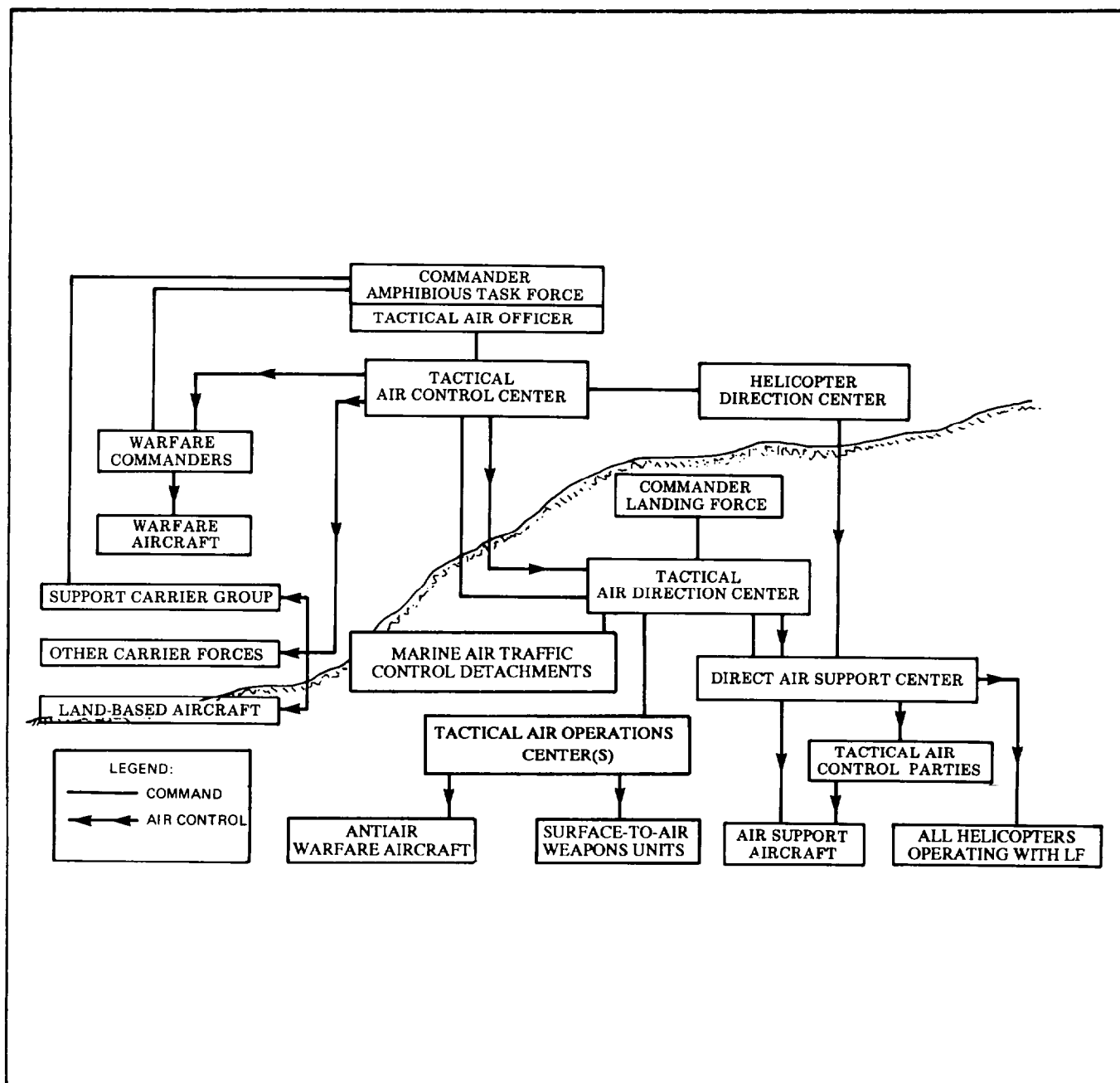


Figure 4-4. Tactical Air Control During Passage of Control Ashore

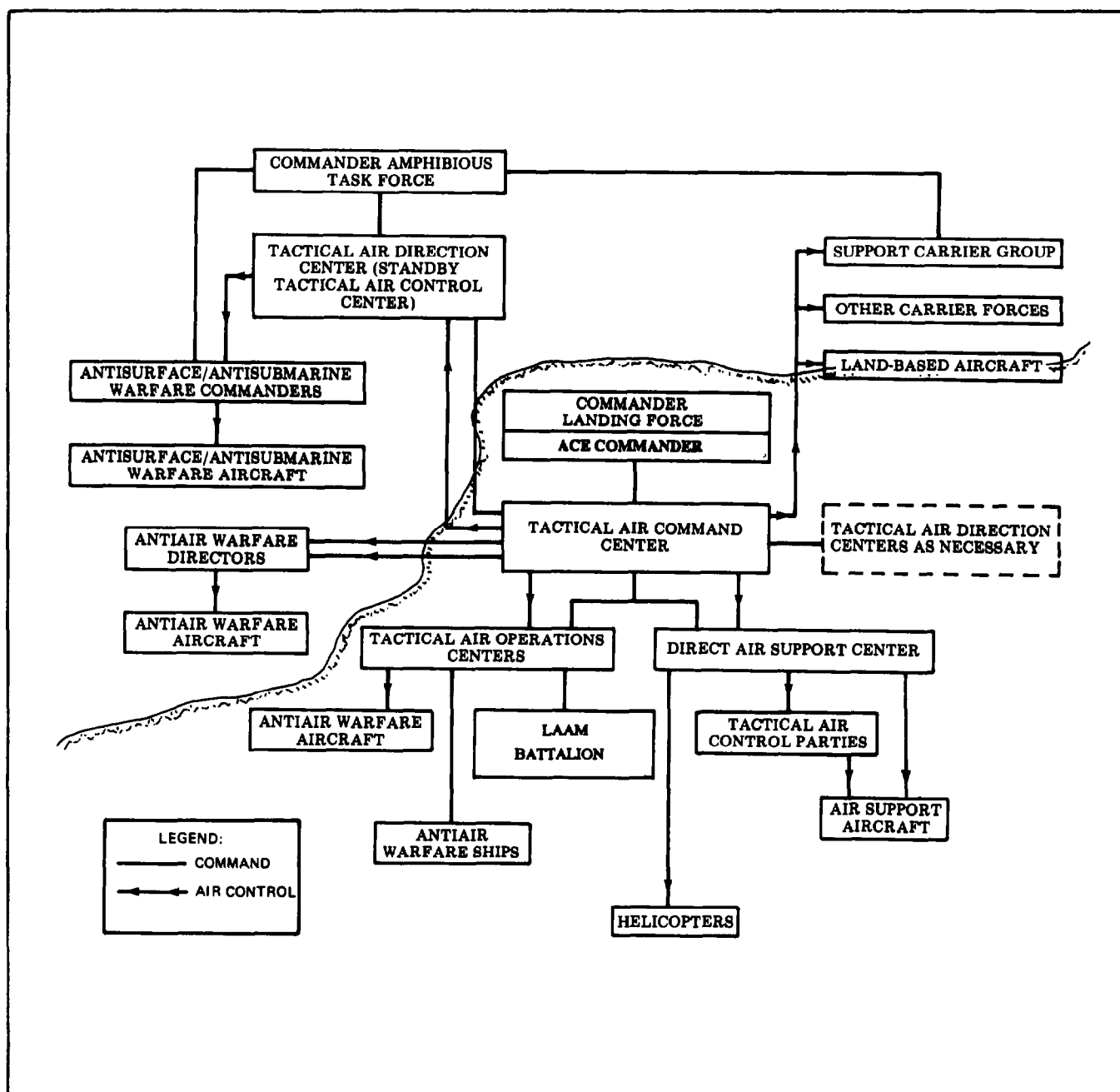


Figure 4-5. Tactical Air Control After Passage of Control Ashore

4.2.10 Controlling Authority

4.2.10.1 En Route to the Objective Area. Control of tactical air operations en route to the objective area is exercised through the Navy TACC, TADC, or CICs aboard the flagship of the ATF, advance force, and movement group commanders. Normally, the control of each force or group is exercised independently under the overall movement plan.

4.2.10.2 Advance Force or Preliminary Air Operations. The advance force commander exercises control of all aircraft in the objective area, through the TADC, from the time of his arrival in the area until relieved of this function by CATF.

4.2.10.3 Assault Air Operations. Upon arrival in the objective area and until control is passed ashore, the ACE commander exercises control over all air operations in the objective area or designated area. This control is exercised through the Navy TACC in the force flagship and may be passed directly to TADCs of subordinate commanders. Areas of responsibility for TADCs usually are those of the force to which they are assigned. Operations of aircraft that are not under the CATF's operational control, but are passing through the objective area, will be closely coordinated with those of the ATF. Such aircraft must establish communications with the Navy TACC when entering and leaving the area.

4.3 EMPLOYMENT OF AVIATION

Air operations use aviation in coordination with ground or naval forces to:

1. Gain and maintain air superiority
2. Prevent movement of enemy forces into and within the objective area
3. Locate and destroy enemy forces and their supporting installations
4. Provide information to influence operations
5. Increase combat power by disrupting the enemy's use of the electromagnetic spectrum
6. Provide continued use of the electromagnetic spectrum despite the enemy EW
7. Join with ground or naval forces to obtain the assigned objective.

Air operations include any operations that assist the ATF and subordinate elements. Air operations conducted by aviation units are:

1. Offensive air support
2. AAW
3. Assault support
4. Air reconnaissance
5. EW
6. Control of aircraft and missiles.

The air operations listed above may be furnished initially by Navy and Marine forces deployed aboard aircraft carriers, other suitable ships, and when practicable from airfields contiguous to the AOA. As soon as adequate terrain is uncovered and as forward operating bases are ready for flight operations, Marine aviation units are phased into the objective area to provide organic air support to the CLF who has assumed control of operations ashore. Navy aviation units may continue to provide air support for subsequent operations ashore or be employed in other essential naval functions at sea.

4.3.1 Offensive Air Support Operations. All air operations may be classified as offensive; however, only those air operations that actually deliver firepower against the enemy's military forces and supporting facilities are referred to as offensive air operations. Offensive air support operations in support of the ATF are executed to assist the ATF in the accomplishment of its mission. They are conducted for the broad purpose of destroying the enemy, his equipment and supplies, and his installations and personnel. They can be analyzed by subdividing them into various component tasks. Many of these tasks overlap and this fact must be considered in planning and executing air tasks. Air operations may be classified according to the purpose of their task and/or the coordination of their task with the fire and maneuver of ground elements of the LF.

4.3.1.1 Purpose. Air operations may be classified as destruction and/or neutralization.

4.3.1.1.1 Destruction. All tactical air support missions, whose primary purpose is to destroy, are considered destruction missions. Destruction missions are of primary interest to the CLF. Their nature changes as the operation progresses. Initially, primary emphasis is placed on destruction missions to gain and maintain air superiority. This is essential in order to create an

environment in which the ground forces can retain freedom of movement. It is accomplished by preventing the launching of enemy aircraft or missiles, or destroying enemy aircraft and missiles after launching. As the operation ashore progresses and air superiority is achieved, primary emphasis shifts to destruction of the immediate battle area.

4.3.1.1.2 Neutralization. Neutralization missions are designed to render areas, weapons, or enemy forces ineffective. Typical missions may be conducted by the aviation component to provide temporary neutralization of hostile fire on or near a force's terrain objective and furnish protection to a helicopterborne force along their approach and retirement lanes. Other missions may include attacks against installations or area of future use to the LF.

4.3.1.2 Coordination of the Task. The second method of classifying offensive air support operations is to examine the assigned task in terms of the amount of coordination required with ground elements of the ATF. In this case, offensive air support operations may be classified as CAS and DAS.

4.3.1.2.1 Close Air Support. CAS is conducted against hostile targets located close to friendly ground force's fire and maneuver. The commander of the supported ground unit requests and approves all CAS missions within his area of operations. Integrate CAS with other supporting arms and the landing force's fire and movement. CAS may be provided by either fixed-wing or rotary-wing aircraft

4.3.1.2.2 Deep Air Support. DAS is conducted on both sides of the FSCL. DAS requires a complete understanding of the CLF's intent and scheme of maneuver. DAS does not require detailed integration with a friendly ground force's fire and maneuver. Coordination is necessary when conducting DAS short of the FSCL. Air interdiction and armed reconnaissance are DAS tasks.

4.3.2 Antiair Warfare Operations. AAW operations are operations conducted against hostile aircraft and/or missiles, their supporting forces, and operating bases for the purpose of rendering them ineffective. These operations employ offensive and defensive actions to gain and maintain air superiority. In the amphibious operation, a reduction in the effectiveness of the enemy's air power must be effected before the assault can take place. The requirement for AAW means is greatest in the initial stages of the amphibious operation. Subsequently, this requirement is reduced in proportion to the ability of AAW operations to destroy the sources of enemy air/missile power. In the latter stages of the

amphibious operation, the LFs air defense forces may be used more fully to reinforce other supporting arms in direct action against the enemy's ground forces. AAW comprises all measures both offensive and defensive employed to achieve and maintain air superiority. AAW is divided into OAAW and air defense.

4.3.2.1 Offensive AAW. OAAW operations are those actions taken to destroy or reduce to an acceptable level the enemy air and missile threat. They include measure taken to destroy the air or missile threat before it is launched and measures to destroy or counter enemy aircraft and missiles in flight.

4.3.2.1.1. Combat Air Patrols. CAPs consist of flights of aircraft under radar and radio control by air defense controllers. Their purpose is to intercept and destroy enemy air attackers. Combat air patrols may be designated as TARCAP, BARCAP, RAPCAP, RESCAP, and so forth, depending upon their specific tasks and the control under which they operate. See NWP 32.

4.3.2.1.2 Shipboard Antiaircraft Operations. These are conducted against those targets that come within range of the appropriate AA weapons. Coordination must be effected to preclude the inadvertent destruction or damage to friendly aircraft. These weapons include conventional type guns and guided missiles.

4.3.2.2 Air Defense. Air Defense operations include all defensive measures designed to destroy attacking enemy aircraft or missiles in the Earth's envelope of atmosphere, or to nullify or reduce the effectiveness of such attack. Air defense comprises all defensive measures both active and passive.

4.3.2.2.1 Active Air Defense. Active air defense operations are those direct defensive actions taken to nullify or reduce the effectiveness of hostile air action. It includes such measures as the use of aircraft, air defense weapons, weapons not used primarily in an air defense role, and electronic warfare.

4.3.2.2.2 Passive Air Defense. Passive air defense operations are all those measures, other than active air defense, taken to minimize the effectiveness of hostile air action. These measures include deception, dispersion, and the use of protective construction.

4.3.3 Assault Support Operations. Assault support operations provide for the air transport of personnel, supplies, and equipment into or within the area of operation, by helicopters or fixed-wing transports. Such operations may be tactical or administrative. Assault support also includes in-flight refueling. To increase

ATF capabilities for assault support, additional aircraft may be provided from external sources.

4.3.3.1 Fixed-Wing Transport Operations.

Fixed-wing transport squadrons contribute to the tactical air support of ground forces in much the same manner as transport helicopters. Fixed-wing transport aircraft are employed to deliver troops, supplies, and equipment to objectives beyond the lift or range capability of helicopters, and/or when delivery is required at a distant destination so rapidly as to preclude the use of surface transportation. When employing fixed-wing assault transports in the air-landed operation, assignment of additional personnel and equipment to the transport unit is normally necessary for preparation of landing facilities in the objective area. Fixed-wing transports require airfields in the marshalling area and normally in the objective area. These fields must meet minimum specifications in length, width, and surface requirements. Air-landed operations depend upon the availability of landing facilities either already in operation or which can be made ready quickly in the objective area.

4.3.3.2 Helicopterborne Operations. These operations are an important task of tactical air support operations. The vertical assault lift capability of helicopters exerts a significant influence on the ground commander's combat potential in terms of increased mobility and freedom of action. The mobility and versatility of the helicopter permits the ground commander to reduce time and space limitations normally encountered in movement of assault forces. A helicopterborne force can move rapidly across terrain obstacles; bypass hostile areas; and attack, destroy, and/or seize important objectives deep in enemy-held territory. Helicopter support particularly enhances the flexibility of the landing force in the critical ship-to-shore phase of the amphibious operation. Vertical assault operations require detailed planning and coordination with ground elements of the landing force and with all supporting arms. Because of the vulnerability of troop-carrying helicopters to missiles, aircraft and ground fire, a maximum effort must be made to protect these aircraft from ground and air threats by judicious application of ground and air assets.

4.3.4 Air Reconnaissance. Air reconnaissance operations provide a major means of collecting current raw data about the terrain, weather, hydrography, and enemy situation. The three types of air reconnaissance are visual, multisensor imagery, and electronic. These operations may involve manned aircraft (fixed or rotary wing), UAV, or satellite systems. Aircraft are maintained on station, or on ground or carrier alert to provide timely and continuous reconnaissance. Photographic aircraft

are used to obtain photographs of bombardment damage, beach areas, and critical localities as directed.

4.3.4.1 Search and Patrol. Search and patrol may be by visual, multisensor imagery, or electronic means. Since air photographs present a true record in a form that may be given wide distribution, photographic missions may be combined with visual and radar reconnaissance missions.

4.3.4.2 Air Spotting for Naval Gunfire and Artillery. For spotting NGF and artillery, high performance aircraft will be provided initially from a carrier or nearby land base. Helicopters and other types of low performance aircraft may be used when air superiority has been established.

4.3.4.3 Air Observation of the Movement and Disposition of Friendly and Enemy Forces.

Officers, either ground or aviator, specially trained in the technique of air observation, are flown over the objective to furnish the commander with pertinent and up-to-date information on the disposition and movement of friendly and enemy forces. During the assault, this tactical air observer keeps the commander informed on the progress of the landing.

Note

It may not be tactically feasible (or survivable) to overfly the objective area. Maximum use of nap-of-the-earth and pop-up techniques are effective methods of observing an objective.

4.3.4.4 Airborne Early Warning. The AEW consists of missions flown by AEW aircraft in which the airborne radar and relay facilities increase the range from the task force at which enemy air and surface forces may be detected and intercepted.

4.3.4.5 Unmanned Aerial Vehicle. UAVs with appropriate payloads can conduct reconnaissance, surveillance, and target acquisition as well as assist in the adjustment of supporting arms fires. They are controlled in the same manner as manned aircraft, through the airspace control system (NTACS/MACCS). They enter the airspace through appropriate airspace control agency (Navy TACC, DASC), to receive routing, altitude, and other pertinent airspace control information. UAV missions should be included on the ATO. They must be coordinated with other air operations and supporting arms. UAVs offer an additional advantage because their use does not require sending manned aircraft into hazardous areas.

4.3.5 Supplementary Air Support Operations

4.3.5.1 Search and Rescue. Those operations conducted for the rescue and evacuation of friendly personnel who are in distress. All rescue facilities and their bases and responsible commanders will maintain constant watch on the communication net provided for this purpose. The TAO controls all SAR operations for the OTC and is responsible for coordination of SAR operations with other phases of amphibious operations. An air unit with helicopters and other rescue facilities may be assigned the responsibility of implementing search and rescue operations in support of its own operations.

4.3.5.2 SEAL and Minesweeping Operations. Air support of SEAL and minesweeping operations is required whenever air opposition is likely or when interference from enemy shore emplacements indicates a need for it.

4.3.5.3 Smokelaying. Smokelaying may be utilized in screening, particularly for SEAL and minesweeping operations, the helicopter ship-to-shore movement, and the first assault waves.

4.3.5.4 Liaison and Courier. Helicopters are useful in conducting liaison and courier service between the CATF and his subordinate commanders while en route to and in the objective area. Effective utilization of this

service can be of substantial aid during conditions of electronics silence.

4.3.5.5 Psychological. Requests may be made to CATF by the LF for propaganda leaflet drop missions. These requests may include the form which CLF desires the propaganda to follow.

4.3.5.6 Antisubmarine Operations. ASW protection is provided by shore and/or carrier-based aircraft of antisubmarine forces. Their operations include escort of friendly ships en route to the objective area and protection of friendly forces in the objective area through patrol, search, and mining operations. ASW operations within the amphibious objective area will be coordinated through the Navy TACC.

4.3.5.7 Antisurface Craft Patrol Operations. This may be established in the vicinity of the beachhead to protect shipping from enemy surface forces, especially suicide and torpedo boats. Planes assigned in this mission will be controlled in the same manner as anti-submarine patrol aircraft.

4.3.5.8 Airborne Mine Countermeasures. The sweeping and clearance of enemy mines from the amphibious objective area may be accomplished by specifically configured AMCM helicopters. When assigned to the ATF, the AMCM helicopter unit will operate as an element of the mine countermeasures group or under the advance force commander.

CHAPTER 5

Planning

5.1 SCOPE

The air planning information contained in this chapter is intended to assist the CATF and his subordinate commanders. Since air planning originates primarily from the support of ground operations, a description of the conduct of planning within the LF is therefore included. For further details on planning, consult Joint Pub 3-02 and Joint Pub 3-56.24.

5.1.1 Basis for Air Planning. Air planning for an amphibious operation is based on the:

1. Mission of the supported forces, including that of the LF
2. Intelligence estimate
3. LF scheme of maneuver
4. Carrier-based and land-based air forces available and air support control forces and facilities available
5. Date of landing.

5.1.2 Procedure. As soon as practicable after the initial directives have been issued, the tentative scheme of maneuver has been prepared, and rough drafts of the task organization and general concept have been issued by the CATF, subordinate commanders will commence preparation of estimates of their requirements for air support. In general, these requirements will be evaluated in terms of the ability of the task organization, as set up, to carry out its responsibilities under the general concept with the air elements organic to its organization.

5.1.3 Consolidation of Air Requirements. The CATF is responsible for the consolidation of all requirements for air support of the amphibious operations.

The CLF is responsible for coordinating air support requirements of his subordinate units and consolidat-

ing them into a comprehensive request, for submission to the CATF.

Based on the requirements of the LF and supplemented by requirements of other elements of his command, the CATF then prepares a plan of air operations supporting the ATF. The plan is issued as a guide for subordinate commanders and planners.

5.1.4 Concurrent Planning. Air operations planning for the ATF at this stage proceeds simultaneously with the planning for naval surface operations. Air operations planning must be closely integrated with planned sea movement and ground movement. It also must be coordinated carefully with the plans for artillery and NGFS in order to provide the maximum AAW and air support possible to the forces involved. The timing of missions in direct support is a function of the supported commander and will conform to his requirements. A reassignment of the advance force to form part of the support group is generally required. Air planning for advance force operations, therefore, will be coordinated closely with all other air planning to ensure continuity of air security and support. Every effort will be made to ensure the maximum use of available air strength.

5.1.5 Employment of Other Air Forces. Detailed planning for the employment of air elements of forces not a part of the ATF, such as covering carrier task forces and land-based air forces, will be accomplished by the responsible commanders of those forces. Air operations planning of other forces normally will be based upon the requests made by the CATF for the accomplishment of missions by these elements. Throughout the planning phase, commanders and staffs of parallel headquarters involved collaborate in the evaluation of the air support problems and in composing the details of the necessary plans.

5.1.6 Coordination With Airborne and Air Supply Operations. Airborne troops may be employed in an amphibious operation to assist ground, air, or naval units. It is especially important to have the

routes and timetables to be used by all airborne forces widely disseminated to responsible commanders in all parts of the ATF.

5.1.7 Integration of Air Requirements. The air requirements that most concern the TAO may be divided into two phases:

1. Requirements for preliminary air operations
2. Requirements for air operations during the assault.

5.1.8 Preliminary Air Operations. Preliminary air operations may be divided into two phases:

1. Air bombardment and reconnaissance operations conducted by land-based or carrier-based forces and initiated well in advance of the amphibious assault. These air operations are conducted under the direction of higher echelons of command.
2. Pre-assault air operations conducted by carrier units of the advance force and/or land-based aviation units. Air operations conducted during this phase are a responsibility of the CATF. He may assign the task of planning such operations to the advance force commander. Details concerning these pre-assault air operations are described in an appendix to the ATF air plan.

5.1.9 Assault Air Operations. AAW and SAR operations affect the ATF as a whole. Accordingly, plans for them are prepared by the CATF.

Both the CATF and the CLF have continuing requirements for offensive air action. The CATF needs offensive air support for the protection of ships and small craft, the continuous neutralization of enemy airfields, and the elimination of enemy anti-aircraft defenses. The CLF requires pre-H-hour beach neutralization as well as both deep and close air support. The LF must also consider requirements for observation, spotting, photography, air transport, smoke, psychological operations, and other special missions.

5.2 AVIATION PLANNING BY THE LANDING FORCE

The initiating directive will designate the aviation forces available for the projected operation. An estimate as to how these forces may be employed will be necessary to determine the initial broad ATF course of action. This estimate will include whether LF aviation can be pre-positioned and the availability of airfields

that might be ATF objectives, and so forth. The CLF also will need an estimate of how aviation relates to his proposed courses of action. After the CLF has chosen a course of action and developed his concept of operations, a detailed estimate of air support requirements must be made. When coordinated and consolidated with a similar NGF estimate and compared with capabilities, the CLF can determine the overall requirement for pre-assault bombardment.

5.2.1 Pre-D-Day Air Operations. LF requests for pre-assault air operations will be based on all intelligence available relating to the enemy, including dispositions, defenses, terrain, lines of communication, and capabilities. The extent of such operations will depend upon an overall decision on limitations to be imposed in order to achieve surprise. The request submitted to the CATF will provide missions to accomplish.

5.2.1.1 Destruction of Enemy Installations. In destruction of located enemy installations, particular emphasis is given to targets that cannot be attacked effectively by NGF, as well as to targets in the critical beach area, the destruction of which is particularly important to early operations ashore. Additional considerations are the destruction of urban areas with consequent interruption of enemy communications and disruption of enemy morale. Requirements for pre-D-day air operations will be coordinated closely with those for NGF.

5.2.1.2 Tactical Air Reconnaissance. This is the acquisition of intelligence information using aerial vehicles in visual observation and/or the use of optical, infrared, and/or electronic sensory devices. The CLF's request may include the reconnoitering and/or identification of hostile forces, weapons locations, or terrain, weather, or damage assessment.

5.2.1.3 Harassment. The CLF will submit requests covering air attacks for the purpose of harassment, outlining the target areas and harassing effect desired.

5.2.1.4 Psychological Warfare. While the psychological warfare policy for any operation is normally established by the CATF or higher authority, the CLF may submit requests for propaganda leaflet drops, including the form that he desires the leaflets to follow.

5.2.2 D-Day Air Operations. LF requirements for assault air operations will include:

5.2.2.1 Pre-H-Hour Attacks for Neutralization of the Beach Area Prior to and During the Ship-to-Shore Movement. In planning these attacks, particular attention must be given to coordination with NGF

plans, since the neutralization task is executed by both aircraft and fire support ships. Air attacks will be scheduled to fill interruptions in NGF, and the direction of attacks planned to cause minimum interference with ship's bombardment.

5.2.2.2 D-Day Air Alert Call Mission Flights. In establishing the requirements for D-day air alert call mission flights, consideration will be given to airspace limitations, size of helicopter assault operations, capabilities of the control system, nature of the terrain in the beach area, and types of targets located or anticipated immediately after landing. In accordance with these factors the optimum armament combinations and support group compositions are requested.

5.2.2.3 Pre-H-Hour and H-Hour Requirements for Helicopters. Consideration will be given to pre-H-hour ship-to-ship transfer, pre-H-hour reconnaissance/landing, and the ship-to-shore movement.

5.2.2.4 Miscellaneous Requirements. Miscellaneous requirements to provide the tactical air coordinators, tactical air observers, photography, artillery spot, and psychological operations will be developed.

5.2.3 Post D-Day Air Operations. Requirements for post-D-day air operations can be stated only in general terms. They include estimated requirements for CAS attacks, observation, photography, spotting, psychological operations, night harassment, transport and others.

5.3 AIR OPERATIONS ANNEX TO THE ATF OPERATION PLAN

The TAO is assigned the overall responsibility for coordinating air planning and for preparing the air plan included as an annex to the operation plan of the CATF. The TAO is assisted by personnel of the tactical air control squadrons, personnel from LF aviation, and by the CIC officers at the various echelons of the ATF organization. Advance force commanders will be assigned tactical air control squadrons or components thereof as early as possible in order that they may serve as air planning staffs.

The basic air operation plan normally contains as many of the following as may be appropriate:

1. Task organization (list of air units in the command)
2. Information (intelligence, outline of all operations to be conducted in support of the attack by air units not a part of the amphibious task force)
3. Unit missions (task assignments of air units listed in the task organization)
4. Administrative and logistic details
5. Communications.

Appendix B contains a complete description of the format and contents of the Air Operations Annex.

CHAPTER 6

Execution

6.1 CONTROLLING AUTHORITY

6.1.1 En Route to the Objective Area. Control of tactical air operations en route to the objective area is exercised through the Navy TACC, TADC, or CIC aboard the flagship of the ATF, advance force, and movement group commanders. Normally, the control of each force or group is exercised independently under the overall movement plan.

6.1.2 Advance Force or Preliminary Air Operations. The advance force commander exercises control of all aircraft in the objective area, through the TADC, from the time of his arrival in the area until he is relieved of this function by the CATF.

6.1.3 Assault Air Operations. Upon arrival in the objective area and until control is passed ashore, the TAO exercises control over all air operations in the objective area or designated area. (See paragraph 4.2.10.3). This control is exercised through the Navy TACC in the force flagship and may be passed directly to TADCs of subordinate commanders. Areas of responsibility for TADCs usually are those of the force to which they are assigned. Operations of aircraft that are not under the operational control of the CATF, but are passing through the objective area, will be closely coordinated with those of the ATF. Such aircraft must establish communications with the Navy TACC when entering and leaving the area.

6.2 NAVY TACTICAL AIR CONTROL SQUADRONS

A Navy TACRON is organized to man all positions of a Navy TACC/TADC. Specified spaces aboard the various amphibious control ships are assigned to the TACRON unit where centralized communication and display equipments permit control and coordination of aircraft.

6.2.1 Composition. The TACRON is an administrative and tactical component of the tactical air control group and is commanded by an aviation officer. A U.S. Marine Corps and a U.S. Army aviation officer are assigned to each TACRON. If U.S. Air Force aircraft or Allied nations are involved in support of an amphibious operation, liaison officers will be assigned to the TACRON during planning and execution of the operation. For purposes of planning, rehearsals, and operations, TACRONs or detachments are temporarily assigned to ATFs. The commanding officer/OIC of the temporarily assigned TACRON squadron/detachment normally stands operational duty as the tactical air controller and also may be assigned additional duty as the TAO.

6.3 MARINE AIR CONTROL GROUP

A Marine air control group provides and maintains facilities organic to the Marine aircraft wing for the control of air operations. The group is a task organization. It normally consists, however, of a headquarters, a MASS, a MACS, a MWCS, a MTACS, a LAAM Bn, and a LAAD Bn. Under certain circumstances, this group may be given operational control of Marine air reconnaissance assets.

6.3.1 Antiair Warfare (Control Ashore). Control of AAW is exercised by the ACE commander. The controlling agency is the TAOC, a control agency subordinate to the Marine TACC. The ground facilities used in the detection and interception of hostile aircraft and the personnel to man and operate the facilities are provided by a MACS. Surface-to-air weapons augmentation personnel are provided to the TAOCs as required.

6.3.2 Air Support (Control Ashore). Control of air support is exercised by the ACE Commander. The controlling agency is the DASC, a control agency subordinate to the Marine TACC. The facilities and personnel required for DASC operations are provided by a MASS.

6.4 ANTI-AIR WARFARE SECTION OF TACTICAL AIR CONTROL CENTER

The personnel manning the AAW section include controllers who are normally officers with experience in the various defensive missions to be controlled, and electronics and communication personnel.

Qualified personnel of the flagship, the TACRON, and CATF's staff are integrated into the AAW section of the Navy TACC. The AAW section functions under the immediate supervision of the AAW coordinator. The functions and instructions of the section are set forth in NWP 32.

6.5 SEQUENCE OF EVENTS

Following the issuance of an OPORD for an amphibious assault, the sequence of events is generally the same, regardless of the size of the operation. Time factors vary, more or less in proportion to the size and scope of the operation planned. Plans prepared for a large-scale invasion of enemy-held territory usually provide ample time for training and rehearsal. The time involved may vary from several months for a large operation to a period of several hours for a hit-and-run commando-type raid that may be planned on short notice.

6.5.1 Training. Training for air operations in an amphibious operation calls for the continuation of the regular program of general training of all elements concerned. Special emphasis will be placed on the phases that will be most pertinent to the type of action proposed, and as much concentration devoted to these aspects as time and location will allow. All units will become thoroughly familiar with air control procedures, AAW measures, and the various forms and charts to be used. All communication equipment shall be thoroughly tested. The various control units and air groups that will actually be employed in the operation will train together as much as possible in order to become thoroughly familiar with the capabilities and limitations of each element.

6.5.2 Rehearsals. The number and type of rehearsals are determined by the assigned tasks of the various forces or units, the time available, and the degree of coordination required. Air elements will, if practicable, participate in joint rehearsals and concentrate on perfecting communications with those units with which they require coordination or mutual support. As many units as possible will take part in the rehearsal, and it is especially desirable to use the same air and control units that will actually support the operation. The rehearsal will be located only where all radio nets may be checked

without violating security. Selection of an area with a land mass similar to the objective will give more accurate information on the effectiveness of radio and radar coverage.

6.5.3 Movement to the Objective. During the movement to the objective, the ATF must be provided with CAPs and antisubmarine patrols. Other air missions normally carried out during this phase are photographic and visual reconnaissance and hydrographic observation. Since radio silence is usually maintained en route to the objective, pilots are briefed for these missions.

6.5.4 Pre-D-Day Operations. Prior to the actual landing of troops, air operations are not hampered by the necessity for identification of friendly front lines and installations. There will be no artillery fire unless nearby positions have been occupied for use by artillery. Close coordination between air, NGF, and artillery (if present) is necessary if the time and supporting arms allotted for fire support are to be used with maximum effectiveness and minimum interference. Familiarity with firing schedules and sectors of responsibility of NGF and artillery assist the advance force Navy TACC in carrying on air operations with minimum suspension of other supporting arms. (See sample pre-D-day aircraft schedules, Figure 6-1).

6.5.5 D-Day Operations

6.5.5.1 Protection of Amphibious Shipping During the Landing. This operation takes place during the landing and subsequent support of the troops while amphibious shipping present is vulnerable to air and submarine attacks. Shipping therefore must be protected by adequate CAPs, antisubmarine patrols, and air warning facilities. Before returning to base, aircraft on CAP may expend any remaining armament in support of the landing forces, as directed by the Navy TACC.

6.5.5.2 Air Strikes Prior to H-Hour. On D-day prior to H-hour, numerous air strikes will be made on the landing beaches and the terrain immediately beyond in order to inflict maximum damage on enemy defense installations and troops. These strikes may consist of any or all of the following types of attacks: bombing, strafing, rocket, smoke, incendiary, or nuclear weapons. During the attacks, naval gunfire and artillery fire may continue, with limitations on the maximum ordinate to permit planes to go low enough to ensure accuracy.

6.5.5.3 Bombing and Rocket Attacks. These attacks will be made against selected targets based on the latest intelligence, with emphasis placed on armored

Event No.	Mission	Provided By	Number and Type A/C	Time on Station	Armament	Report To on Net	Entry Point/Altitude	Remarks
1	CAP	Advance and support group	4 VF or 1 VF	1630 to 2100	Full ammo.	VALEDICTION on Cap Helo Control net	YANKEE 25,000	Relieve on station as required. Conduct CAP for transport group (TG 12.2)
2	ASW Ops	CVSG	2 ASW teams	0001 to 0430 1630 to 2400	WATER HOLE	VALEDICTION on HULK Ops (A) net	XRAY/ 3,000	Relieve on station as required. Conduct ASW Ops for transport group (TG 12.2)
3	ASW ops	CVSG	2 ASW teams	0001 to 0430 1630 to 2400	WATER HOLE	HABITAT on HUK Ops (B) net		Relieve on station as required. Conduct ASW Ops for transport group (TG 12.1)
4	TARCAP	MAG-15	1 VF	0430 to dawn	Full ammo.	LAZARUS on TATC net	XRAY/ 20,000	
5	TARCAP	CVW-19	2 VF	Continuous day operations	Full ammo.	LAZARUS on TACT net	YANKEE 25,000	Relieve on station as required
6	TAO	CVW-19	2 VF or VA	As requested	Full ammo.	LAZARUS on TACT net	OSCAR/ 20,000	
7	TAC(A)	CVW-19	2 VF or VA	Dawn to dusk	CADDY	LAZARUS on TACT net	YANKEE/ 25,000	
8	NGF air spot	CVW-19	2 VF or VA	As requested	Full ammo.	LAZARUS on TACT net	XRAY/ 15,000	Conduct air spot in accordance with Annex G
9	Strike group ALFA	MAG-15	12 VF or VA	On call by Navy TACC	6 EAGLE 6 MEDAL PLAY	LAZARUS on TACT net	YANKEE/ 25,000	Conduct pre-D day strikes as directed by Navy TACC

Figure 6-1. Pre-D-Day Aircraft Schedules (Sample) (Sheet 1 of 2)

and revetted installations capable of firing on the landing beaches and their approaches.

6.5.5.4 Strafing Attacks. These attacks usually run parallel to the beach in order to give the best coverage of the area and at the same time allow a maximum margin of safety for the approaching troops. The landing area also will be covered by strafing during the time the landing craft are making the final approach to the beach. This support is particularly important while the first wave is moving to the beach, since NGF is usually moved inland at this time. Strafing continues until all ammunition is expended.

6.5.5.5 A Typical Time Schedule for H-Hour Strikes. A typical time might be the following:

1. H - 60 minutes to H - 35 minutes bomb and rocket attack on and close to the beaches
2. H - 35 minutes to H - 20 minutes napalm attack on beach and flanks

3. H - 10 minutes to H - 5 minutes smoke attack to hide movement of approaching boat waves

4. H - 3 minutes to H + 2 minutes strafing attack.

Strikes may be executed simultaneously with naval gunfire and artillery, if present, according to schedule.

6.5.5.6 Adjustment of Time and Type of Attack. This may be necessary because of local conditions or variations in speed of landing craft in the first assault wave. The landing crafts' position in relation to the beach rather than the time in relation to scheduled H-hour is the determining factor in starting and stopping attacks. (See sample D-day aircraft schedules, Figure 6-2.)

6.5.5.7 After H-Hour Strikes Have Been Completed. Aircraft on station can be of considerable help in silencing active enemy installations opposing friendly troops. During the period between the landing and setting up of tactical air control parties' (TACP)

Event No.	Mission	Provided By	Number and Type A/C	Time on Station	Armament	Report To on Net	Entry Point/Altitude	Remarks
10	Strike group BRAVO	CVW-19	12 VF or VA	On call by Navy TACC	6 EAGLE 6 MEDAL PLAY	LAZARUS on TACT net	OSCAR/25,000	Conduct pre-D-Day strikes as directed by Navy TACC
11	Strike group CHARLIE	MAG-15	12 VF or VA	On call by Navy TACC	6 EAGLE 6 MEDAL PLAY	LAZARUS on TACT net	XRAY/20,000	Conduct strikes as directed by Navy TACC
12	NGF air spot	LHA-LPH	1 Visual recon	As requested	None	LAZARUS on TACT net	YANKEE 15,000	Conduct air spot in accordance with Annex G
13	Aerial reconnaissance	CVW-19	2 Photo recon	As requested	None	LAZARUS on TACT net	OSCAR 20,000	Conduct aerial reconnaissance as directed by Navy TACC
14	SAR	CVW-19	1 SAR Helo	On call 0430 to 2100	None	LAZARUS on TACT net		Conduct SAR as directed by Navy TACC
15	Helicopter transport	LHA/LPH	1 Helo transport	On call 0630 to 1200	None	LAZARUS on TACT net		When directed by CTF 12, transport NG spot team from Rendova to TA 7033E. Return personnel when directed to Rendova (about H+75).
16	ASW Ops	NEAF	2 VP	Dawn to dusk	1 MK 43	VALEDICTION HUK Ops (A)		Relieve on station
17	ASW Ops	CVW-19	4 ASW Helo	Dawn to dusk	1 MK 43	HABITAT HUK Ops (B)		Relieve on station

Figure 6-1. Pre-Day Aircraft Schedules (Sample) (Sheet 2 of 2)

communication equipment, the appropriate controlling agency directing missions must take care not to endanger friendly troops. Panels, smoke, or other markers cannot be depended on during this early deployment when front lines are very irregular.

6.5.5.8 After Tactical Air Control Parties are Functioning Ashore. Close air support missions will be controlled by the FAC when possible. Commanders will request immediate CAS missions via the TAR net to the appropriate air support section of the Navy TACC/TADC or the DASC when the latter is established and operating ashore. (The decision of a unit commander to request a CAS mission includes the assumption of the risk involved to his unit.)

6.5.6 Post D-Day Operations. Post D-day operations encompass all of the missions listed for assault operations, but are primarily concerned with air operations in support of the landing force. (See sample post-D-day aircraft schedules, Figure 6-3.)

6.6 SAMPLE IMMEDIATE CLOSE AIR SUPPORT MISSION

6.6.1 Status of Aircraft Assigned. Immediate CAS missions may be assigned to aircraft that are:

1. In an air-alert status over a designated orbit point
2. In a deck-alert status available to the Navy TACC or Marine TACC, or
3. Diverted from other missions.

6.6.2 Request Procedures. Requests for immediate CAS may be originated by troop commanders at any level. Prior to the establishment of the DASC, TACP transmits the request and all essential information relating to the requested mission to the appropriate Navy TACC or Marine TACC as appropriate over the TAR net. This information is given in the standard sequence in which it appears in the Joint Tactical Air Strike Request voice format (Figure 6-4). See Joint Publication 3-09.3 for more information. The request is monitored at all intermediate command levels between the originator and the Navy TACC, Marine TACC, or TADC. If not countermanded or modified at any intermediate level, the tactical air control or direction center records it for processing. If the request is countermanded or modified at any intermediate level, the originator and the tactical air control or direction center are so informed over the tactical air request net. All of the target information contained in the JTAR is checked by the air intelligence officer of the tactical air control or direction

Event No.	Mission	Provided By	Number and Type A/C	Time on Station	Armament	Report To on Net	Entry Point/Altitude	Remarks
1	TARCAP 1	CTG 41.3 (FDR)	2 VF	H - 4:15 to H - 3:00	AUSTIN	CTF 40 (DERAIL)	YANKEE/ 25,000	TARCAP for TF 40
1A	AUTOCAT 1A	CTG 41.3 (WILMINGTON)	1 VA/ VAW	0500 to 0600 1800 to 1900	None	CTF 40 (DERAIL)	XRAY/ 10,000	Radio relay for recon. teams; after 1800, perform mission every 4 hours until cancelled.
2	Strike group ALFA	CTG 41.3 (FDR)	8 VF 8 VA	H - 2:45 to H - 1:15	CADILLAC FORD	CTF 40 (BAFFLE)	XRAY/ 20,000	Prebriefed mission
3	AEW 1	CTG 41.3 (CHERRY PT)	1 VA/ VAW	H - 2:45 to H + 9:00	None	CTF 40 (DERAIL)	YANKEE/ 10,000	AEW for TF 40
4	AUTOCAT 1B	CTG 41.3 (WILMINGTON)	1 VA/ VAW	H - 2:45 to H + 9:00	None	CTF 40 (BAFFLE)	OSCAR/ 10,000	Act as radio relay for NGF
5	TARCAP 1	CTG 41.3 (WILMINGTON) CTG 41.3 (WILMINGTON) CTG 41.3 (CHERRY PT)	4 VA 4 VF 4 VF	H - 3:00 to H + 9:15	AUSTIN	CTF 40 (DERAIL)	XRAY/ 25,000	Jets provide HICAP
6	Fighter sweep 1	CTG 41.3 (CHERRY PT)	8 VF	H - 2:30 to H + 9:15	BUICK	CTF 40 (BAFFLE)	YANKEE/ 25,000	Prebriefed mission
7	TAO 1 ALFA	CTG 41.3 (CHERRY PT)	1 VA	H - 2:30 to H + 9:15	BUICK	CTF 40 (BAFFLE)	XRAY/ 10,000	Operate forward of fire support coordination line
8	TAO 1 BRAVO	CTG 41.3 (CHERRY PT)	1 VA	H - 2:30 to H + 9:15	BUICK	CTF 40 (BAFFLE)	XRAY/ 10,000	Operate between beach and fire support coordination line
9	NGF spot 1	CTG 41.3 (WILMINGTON)	1 VA	H - 2:45 to H + 9:00	None	CTF 40 (BAFFLE)	YANKEE/ 15,000	Relieve on station; see Note 1
10	Aerial reconnaissance	CTG 41.3 (CHERRY PT)	1 Photo recon	On call H - 2:45 to 1830	None	CTF 40 (BAFFLE)	XRAY/ 20,000	
11	Special	CTG 41.3 (CHERRY PT)	2 VF 2 VA	On call H - 45 min to 1830	Special	CTF 40 (BAFFLE)	YANKEE/ 25,000	
12	Strike group BRAVO	CTG 41.3 (FDR)	12 VF 8 VA 4 VA	H - 1:00 to H + 0:30	CADILLAC FORD FORD	CTF 40 (BAFFLE)	XRAY/ 20,000	Prebriefed mission
13	Support group ALFA	CTG 41.3 (FDR) CTF 41.3 (CHERRY PT)	4 VF* 8 VA	H - 1:15 to H + 0:15	NASH MERCURY	CTF 40 (BAFFLE)	YANKEE/ 20,000	R/V Pt IRON or as directed by CTF 40 *Strike leader

Figure 6-2. D-Day Aircraft Schedules (Sample) (Sheet 1 of 4)

Event No.	Mission	Provided By	Number and Type A/C	Time on Station	Armament	Report To on Net	Entry Point/Altitude	Remarks
14	TAC (A) 1	CTG 41.3 (WILMINGTON)	1 VF	H - 0:30 to H + 1:45	BUICK	CTF 40 (BAFFLE)	XRAY/ 20,000	
15	Helicopter escort 1	CTG 41.3 (WILMINGTON)	6 VF	F - 0:30 until relieved	BUICK	CTF 40 (BAFFLE)	XRAY/ 10,000	See Note 2
16	Helicopter support group ALFA	CTG 41.3 (WILMINGTON)	8 VA	F - 0:30 until relieved	CHRYSLER	CTF 40 (BAFFLE)	YANKEE/ 15,000	See Note 3
17	SMOKE ABLE	CTG 41.3 (CHERRY PT)	4 VF	H - 0:30 to H + 2:30	Smoke tanks	CTF 40 (BAFFLE)	XRAY/ 10,000	See Note 4
18	SMOKE BRAVO	CTG 41.3 (CHERRY PT)	4 VF	F - 0:30 to F + 1:00	Smoke tanks	CTF 40 (BAFFLE)	XRAY/ 10,000	See Note 5
19	Support group BRAVO	CTG 41.3 (WILMINGTON) CTG 41.3 (CHERRY PT)	4 VF 8 VF	H + 0:15 to H + 1:30	NASH MERCURY	CTF 40 (BAFFLE)	YANKEE/ 25,000	See Event No. 13
20	Propaganda leaflets	CTG 41.3 (CHERRY PT)	2 VA	On call H + 15 min to 1830	EDSEL	CTF 40 (BAFFLE)	XRAY/ 10,000	2-hours' notice
21	Strike group CHARLIE	CTG 41.3 (FDR)	8 VF 8 VA	H + 0:45 to H + 2:15	CADILLAC FORD	CTF 40 (BAFFLE)	YANKEE/ 25,000	Prebriefed mission
22	TAC (A) 2	CTG 41.3 (FDR)	1 VA	H + 1:30 to H + 3:45	BUICK	CTF 40 (BAFFLE)	YANKEE/ 10,000	
23	Artillery spot	CTF 41.3 (CHERRY PT)	1 VA	H + 1:15 to H + 9:15	None	CTF 40 (BAFFLE)	XRAY/ 10,000	See Note 1
24	Support group CHARLIE	CTG 41.3 (WILMINGTON) CTG 41.3 (CHERRY PT)	4 VF* 8 VA	H + 1:30 to H + 2:45	NASH MERCURY	CTF 40 (BAFFLE)	XRAY/ 20,000	See Event No. 13 *Strike leader
25	Support group DELTA	CTG 41.3 (FDR) CTG 41.3 (FDR)	8 VF 8 VA	H + 2:30 to H + 4:00	CADILLAC FORD	CTF 40 (BAFFLE)	YANKEE/ 20,000	Prebriefed mission
26	Support group DELTA	CTG 41.3 (WILMINGTON) CTG 41.3 (CHERRY PT)	4 VF 8 VA*	H + 2:45 to H + 4:00	NASH MERCURY	CTF 40 (BAFFLE)	OSCAR/ 20,000	See Event No. 13 *Strike leader

Figure 6-2. D-Day Aircraft Schedules (Sample) (Sheet 2 of 4)

Event No.	Mission	Provided By	Number and Type A/C	Time on Station	Armament	Report To on Net	Entry Point/Altitude	Remarks
27	TAC (A) 3	CTG 41.3 (WILMINGTON)	1 VF	H + 3:45 to H + 6:15	BUICK	CTF 40 (BAFFLE)	XRAY/ 20,000	
28	Strike group ECHO	CTG 41.3 (FDR)	8 VF 8 VA 4 VA	H + 4:15 to H + 5:45	CADILLAC FORD FORD	CTF 40 (BAFFLE)	XRAY/ 25,000	Prebriefed mission
29	Support group ECHO	CTG 41.3 (WILMINGTON) CTG 41.3 (CHERRY PT)	4 VF* 8 VA	H + 4:00 to H + 5:15	NASH MERCURY	CTF 10 (BAFFLE)	XRAY/ 25,000	See Event No. 13 *Strike leader
30	Strike group FOXTROT	CTG 41.3 (FDR)	8 VF 8 VA	H + 6:00 to H + 7:30	CADILLAC FORD	CTF 40 (BAFFLE)	OSCAR/ 20,000	Prebriefed mission
31	TAC (A) 4	CTG 41.3 (FDR)	VA	H + 6:00 to H + 9:00	BUICK	CTF 40 (BAFFLE)	YANKEE/ 15,000	
32	Support group FOXTROT	CTG 41.3 (WILMINGTON) CTG 41.3 (CHERRY PT)	4 VF 8 VA*	H + 5:15 to H + 6:30	NASH MERCURY	CTF 40 (BAFFLE)	YANKEE/ 20,000	See Event No. 13 *Strike leader
33	Strike group GOLF	CTG 41.3 (FDR)	8 VF 8 VA	H + 7:45 to H + 8:45	CADILLAC FORD	CTF 40 (BAFFLE)	XRAY/ 20,000	Prebriefed mission
34	Support group GOLF	CTG 41.3 (WILMINGTON) CTG 41.3 (CHERRY PT)	4 VF* 8 VA	H + 6:30 to H + 7:45	NASH MERCURY	CTF 40 (BAFFLE)	OSCAR/ 25,000	See Event No. 13 *Strike leader
35	TARCAP 2	CTG 41.3 (FDR)	1 VF	H + 9:15 to H + 11:00	AUSTIN	CTF 40 (DERAIL)	XRAY/ 30,000	CAP for CTF 40
36	HECKLER 1	CTG 41.3 (FDR)	1 VA	H + 9:15 to H + 11:00	AUSTIN	CTF 40 (BAFFLE)	OSCAR/ 10,000	Proceed to and return from objective area in company with TARCAP 2
37	TARCAP	CTG 41.3 (FDR) CTG 41.3 (CHERRY PT)	1 VF 2 VF	H + 11:15 to 0445	AUSTIN AUSTIN	CTF 40 (DERAIL)	XRAY/ 25,000	Condition 3
38	HECKLER 2	CTG 41.3 (FDR)	1 VF	H + 11:15 to 0445	AUSTIN	CTF 40 (BAFFLE)	YANKEE/ 20,000	Condition 3, proceed to and return from objective area in company with TARCAP

Figure 6-2. D-Day Aircraft Schedules (Sample) (Sheet 3 of 4)

Event No.	Mission	Provided By	Number and Type A/C	Time on Station	Armament	Report To on Net	Entry Point/Altitude	Remarks
39	Flare drop	CTG 41.3 (CHERRY PT)	1 VF	On call	Max. flares	CTF 40 (BAFFLES)	OSCAR/15,000	Condition 4
40	Air delivery	CTG 46.1	5 CH	On call	None	CTF 40 (BAFFLE)		3-hour's notice
41	ASW Ops	NEAF	2 VP	Dawn to dusk	4 Mk 46	Valediction HUK Ops (A)		Relieve on station
42	ASW Ops	CVW-19	4 ASW helos	Dawn to dusk	4 Mk 46	Habitat HUK Ops (B)		Relieve on station

NOTES:

1. NGF spot and artillery spot aircraft will utilize VA aircraft until observation aircraft are established ashore, at which time observation aircraft will be utilized.
2. Cover helicopterborne unit lift. At conclusion report to BAFFLE for close air support.
3. Conduct strafing attacks in helicopter landing zone, commencing F - 0:7 until first helicopter wave reaches Southwest Creek. Conduct support missions as requested by helicopter landing force.
4. Smoke from Buck Creek, TA851345 to Rhodes Point, TA827353, when LVTs commence river crossing about H + 1:10. Maintain screen as long as possible.
5. Smoke from Ragged Point, TA785423 to Montford Point, TA765461, commencing at F - 0:02. Do not smoke if wind from S or SW.

Figure 6-2. D-Day Aircraft Schedules (Sample) (Sheet 4 of 4)

center, for proximity to front lines, enemy antiaircraft fire, and the best air route to the target. He then ascertains if a mission has already been approved for the target. The DASC, after being established ashore, becomes the net control station of the TAR net and receives, coordinates, and processes all immediate air support requests. The DASC, subject to fire support coordination requirements, directs the mission execution by aircraft under its control or by requesting aircraft from the Navy TACC, Marine TACC, or TADC. The request is referred to the SACC/FSCC for consideration with respect to other supporting fire prior to final approval as an air mission. Naval gunfire and artillery schedules are checked to determine whether their fire will endanger the aircraft. If necessary, and if the mission has a high priority, either or both of this fire may be lifted or restricted by applying an ACA. Should the enemy air defense situation require it, SEAD fire should be planned at this time.

6.6.3 Authorization and Ordering. After the target has been determined suitable for air attack and the necessary coordination of the request has been accomplished, final approval is granted by the control (or direction) center. A flight of aircraft, sufficient in number and carrying suitable armament for accomplishing the mission, is ordered by the Navy TACC or Marine TACC to report to an appropriate control agency that will direct the execution of the mission. This control agency will normally be the TACP of the requesting

commander. After the DASC has been established ashore, the TACP will request immediate support missions from the DASC. The DASC will effect coordination of the mission either by aircraft under its control or by requesting aircraft from the Navy TACC, Marine TACC, or TADC as appropriate. TAC(A) may assist in directing the execution of the mission. At the same time the flight is ordered to report, it is briefed concurrently with the TAC(A). The orders and briefing are given in the standard sequence in which they appear on the JTAR, and are transmitted over the tactical air direction net. If additional instructions are required they are furnished by the FAC, also over the tactical air direction net.

The following forms are to be used as appropriate:

1. JTAR (Figure 6-4). Instructions for use are provided in Appendix E.
2. Joint air strike report (Figure 6-5).

6.6.4 Execution of the Mission. The execution of the mission is controlled and coordinated by the designated control agency. The methods of control which may be employed as appropriate are:

1. Visual control by the FAC is the preferred method, especially when close coordination with front-line troops is required. When this method is

Event No.	Mission	Provided By	Number and Type A/C	Time on Station	Armament	Report To on Net	Entry Point/Altitude	Remarks
1	TARCAP 1	CTG 41.3 (FDR) CTG 41.3	1 VF	2400 to 0500 2000 to 2400	AUSTIN	CTF 40 (DERAIL)	YANKEE/ 30,000	Condition 3 TARCAP for TF 40, relieve on station
	TARCAP 1	(CHERRY PT)	2 VF					
2	TARCAP 1	CTG 41.3 (FDR)	1 VF	0445 to 0630 1830 to 2000	AUSTIN	CTF 40 (DERAIL)	XRAY/ 25,000	Proceed to and return from objective area with D HECKLER 1
3	DADHECKLER	CTG 41.3 (FDR)	1 VA	0445 to 0630 1830 to 2000	PONTIAC	CTF 40 (BAFFLE)	OSCAR/ 10,000	See Event No. 2
4	Strike group ALFA	CTG 41.3 (FDR)	4 VF	0615 to 1815	CADILLAC	CTF 40 (BAFFLE)	XRAY/ 25,000	Prebriefed mission, see Note
5	RAPCAP 1	CTG 41.3 (CHERRY PT)	4 VA/VAW	0615 to 1815	AUSTIN	REQUIN (CARIBOUK)	OSCAR/ 15,000	RAPCAP for SSR at Pt. Nickel
6	AEW 1	CTG 41.3 (CHERRY PT)	1 VA/VAW	0615 to 1815	None	CTF 40 (DERAIL)	YANKEE/ 15,000	AEW for TF 40, relieve on station
7	AUTOCAT 1	CTG 41.3 (CHERRY PT)	1 VA	0615 to 1815	None	CTF 40 (BAFFLE)	XRAY/ 10,000	Radio relay, relieve on station
8	TARCAP 1	CTG 41.3 (WILMINGTON)	4 VF	0615 to 1815	AUSTIN	CTF 40 (DERAIL)	YANKEE/ 25,000	Jets provide HICAP, relieve on station
		CTG 41.3 (WILMINGTON)	4 VF					
		CTG 41.3 (WILMINGTON)	4 VF					
9	Support group 1 ALFA	CTG 41.3 (WILMINGTON)	4 VF	0615 to 1815	NASH MERCURY OLDSMOBILE	CTF 40 (BAFFLE)	XRAY/ 25,000	Close air support, relieve on station
		CTG 41.3 (WILMINGTON)	4 VF					
		CTG 41.3 (WILMINGTON)	8 VA					
10	SMOKE	CTG 41.3 (WILMINGTON)	VF/VA	0630 — on call until 1830	LINCOLN	CTF 40 (BAFFLE)	OSCAR/ 15,000	Condition 4
11	TAO 1 ALFA	CTG 41.3 (WILMINGTON)	1 VA	0630 — on call until 1800	BUICK	CTF 40 (BAFFLE)	YANKEE/ 15,000	Operate forward of fire support coordination safety line, relieve on station
12	Support group 2 ALFA	CTG 41.3 (CHERRY PT)	8 VF 8 VA	0615 to 1800	NASH	CTF 40 (BAFFLE)	OSCAR/ 20,000	Close air support, relieve on station
13	Special	CTG 41.3 (CHERRY PT)	2 VF 2 VA	0615 — On call until 1800	BUICK	CTF 40 (BAFFLE)	XRAY/ 20,000	Relieve on station
14	TAC (A) 1	CTG 41.3 (CHERRY PT)	1 VA	0630 to 1815	BUICK	CTF 40 (BAFFLE)	YANKEE/ 15,000	Relieve on station

Figure 6-3. Post-D-Day Aircraft Schedules (Sample) (Sheet 1 of 2)

Event No.	Mission	Provided By	Number and Type A/C	Time on Station	Armament	Report To on Net	Entry Point/Altitude	Remarks
15	TAO 1 BRAVO	CTG 40.5	1 OV	0630 to 1800	None	CTF 40 (BAFFLE)		Operate between front line and fire support coordination safety line, relieve on station
16	NGF spot 1	CTG 40.5	1 OV	0630 to 1800	None	CTF 40 (BAFFLE)		Relieve on station
17	Arty. spot 1	CTG 40.5	1 OV	0630 to 1800	None	CTF 40 (BAFFLE)		Relieve on station
18	Aerial reconnaissance	CTG 41.3 (CHERRY PT)	1 VF	On call 0715 to 1800	None	CTF 40 (BAFFLE)		Condition 4
19	Flare	CTG 41.3 (WILMINGTON)	1 VF	1830 to 2400 0000 to 0600 On call	Max. flares	CTF 40 (BAFFLE)	XRAY/ 10,000	Condition 4
20	NITE HECKLER 1 ALFA	CTG 41.3 (FDR)	1 VA	2015 to 2400	PONTIAC	CTF 40 (BAFFLE)	YANKEE/ 10,000	Proceed and return from the objective area with TARCAP
21	NITE HECKLER 2 ALFA	CTG 41.3 (CHERRY PT)	2 VA	2015 to 0430 On call	PONTIAC	CTF 40 (BAFFLE)	XRAY/ 10,000	Condition 3
22	Propaganda	CTG 41.3 (CHERRY PT)	2 VA	On call	AUSTIN	CTF 40 (BAFFLE)	OSCAR/ 15,000	2 hours' notice
23	Resupply	CTG 46.1	2 F/W Transports/ 5 Helo transports	On call	None	CTF 40 (BAFFLE)		3 hours' notice
24	ASW Ops	NEAF	2 VS/VP	Dawn to dusk	2/4 Mk 46	Valediction		Relieve on station
25	ASW Ops	CTG 41.3	4 ASW Helo	Dawn to dusk	2 Mk 46	Habitat HUK Ops (B)		Relieve on station
Note: Strikes will be conducted between 0615 and 1815 with 15-minute interval between departure of one group and arrival of another at the approach and retirement point.								

Figure 6-3. Post D-Day Aircraft Schedules (Sample) (Sheet 2 of 2)

used, the FAC will direct the aircrew onto the target, using the most appropriate approach, attack, and retirement procedures. The aircrew may be required to make a preliminary dummy run to ensure proper identification of the target. The TAC(A) may assist by making dives on the target or by marking the target with smoke rockets.

- The target may be designated by reference to the standard grid coordinates, and the aircrew briefed concerning the nature and appearance of the target and other identifying characteristics. The TAC(A) or the flight leader will be responsible for identifying the target and directing the

strike under the supervision and control of the Navy TACC or Marine TACC as appropriate.

- When fixed-wing aircraft are being employed in support operations, their endurance is extremely short and is even further reduced when flying at low altitudes. When practicable, aircrews will be briefed on target data while en route to the target in order to reduce the time interval and increase the range at which the strike can be made. Every effort will be made to associate targets with clear landmarks discernible from high altitude.
- After the mission is completed and strike damage reported (see Figure 6-5), the flight is re-

JOINT TACTICAL AIR STRIKE REQUEST				See Joint Pub 3-09.3 for preparation instructions	
SECTION I - MISSION REQUEST					DATE
1. UNIT CALLED		THIS IS		REQUEST NUMBER	
				<div style="display: flex; justify-content: space-between;"> <div>TIME</div> <div>BY</div> </div>	
2. PREPLANNER: <input type="checkbox"/> A PRECEDENCE <input type="checkbox"/> B PRIORITY <input type="checkbox"/> C				<div style="display: flex; justify-content: space-between;"> <div>RECEIVED</div> <div>TIME</div> <div>BY</div> </div>	
<div style="display: flex; justify-content: space-between;"> <div> 3. TARGET IS / NUMBER OF <input type="checkbox"/> A PERS IN OPEN <input type="checkbox"/> B PERS DUB IN <input type="checkbox"/> C WPM/BSR/MAT <input type="checkbox"/> D MORTARS, ARTY <input type="checkbox"/> E AAA AAA <input type="checkbox"/> F ARTS REABLE <input type="checkbox"/> G ARMOR <input type="checkbox"/> H VEHICLES <input type="checkbox"/> I BLDGS <input type="checkbox"/> J BRIDGES <input type="checkbox"/> K FULLBOX, BUNKERS <input type="checkbox"/> L SUPPLIES, BSLP <input type="checkbox"/> M CENTER (CP, COM) <input type="checkbox"/> N AREA <input type="checkbox"/> O ROUTE <input type="checkbox"/> P MOVING N E S W <input type="checkbox"/> Q REMARKS </div> </div>					
4. TARGET LOCATION IS					CHECKED
<div style="display: flex; justify-content: space-between;"> <div> <input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D (COORDINATES) (COORDINATES) (COORDINATES) (COORDINATES) </div> <div>BY</div> </div>					
<div style="display: flex; justify-content: space-between;"> <div> <input type="checkbox"/> E TGT ELEV <input type="checkbox"/> F SHEET NO. <input type="checkbox"/> G SERIES <input type="checkbox"/> H CHART NO </div> </div>					
5. TARGET TIME / DATE					
<div style="display: flex; justify-content: space-between;"> <div> <input type="checkbox"/> A ASAP <input type="checkbox"/> B NLT <input type="checkbox"/> C AT <input type="checkbox"/> D TO </div> </div>					
6. DESIRED ORG / RESULTS					
<div style="display: flex; justify-content: space-between;"> <div> <input type="checkbox"/> A ORDNANCE <input type="checkbox"/> B DESTROY <input type="checkbox"/> C NEUTRALIZE <input type="checkbox"/> D HARASS/INTERDICT </div> </div>					
7. FINAL CONTROL					
<div style="display: flex; justify-content: space-between;"> <div> <input type="checkbox"/> A FAC/RABPAC <input type="checkbox"/> B CALL SIGN <input type="checkbox"/> C PRSQ </div> </div>					
<div style="display: flex; justify-content: space-between;"> <div> <input type="checkbox"/> D CONT PT </div> </div>					
8. REMARKS					
<div style="display: flex; justify-content: space-between;"> <div> 1. IF _____ 2. HORIZ _____ MAG _____ OFFSET: LR _____ 3. DISTANCE _____ 4. TGT ELEVATION _____ FEET MSL 5. TGT DESCRIPTION _____ 6. TGT LOCATION _____ 7. MARK TYPE _____ CODE _____ 8. FRIENDLES </div> <div> 9. BORDRS _____ 10. SCH-TGT _____ MAG _____ SCH ORG _____ 11. SCH-TGT _____ METERS _____ TGT ORG _____ 12. SCH ELEVATION _____ FEET MSL </div> </div>					
SECTION II - COORDINATION					
9. MSG		10. ARTY		11. AOCB-3/5-3	
12. REQUEST		13. BY		14. REASON FOR DISAPPROVAL	
<input type="checkbox"/> APPROVED <input type="checkbox"/> DISAPPROVED					
15. AIRSPACE COORDINATION AREA				16. IS IN EFFECT	
<input type="checkbox"/> A IS NOT IN EFFECT <input type="checkbox"/> B NUMBER				<input type="checkbox"/> A (FROM TIME) <input type="checkbox"/> B (TO TIME)	
17. LOCATION				18. ALTITUDE/VERTEX	
<input type="checkbox"/> A <input type="checkbox"/> B (FROM COORDINATES) (TO COORDINATES)				<input type="checkbox"/> A <input type="checkbox"/> B (MAX/ELEV/VERTX) (MIN/ELEV)	
SECTION III - MISSION DATA					
20. MISSION NUMBER		21. CALL SIGN		22. NO. AND TYPE AIRCRAFT	
23. ESTACT TAKEOFF		24. EST TOT		25. CONT PT(COORDS)	
26. FAC/FACIA/TAC/CAI CALLSIGN /REQ		27. AIRSPACE COORDINATION AREA		28. TGT DESCRIPTION	
				29. TGT COORDS/ELEV	
30. BATTLE DAMAGE ASSESSMENT (BDA) REPORT (USMTF INFLTRP)					
<div style="display: flex; justify-content: space-between;"> <div> LINE 1 / CALL SIGN _____ LINE 2 / MSG NUMBER _____ LINE 3 / REQ NUMBER _____ </div> <div> LINE 4 / LOCATION _____ LINE 5 / TOT _____ LINE 6 / RESULTS _____ REMARKS _____ </div> </div>					
* TRANSMIT AS APPROPRIATE					

DD FORM 1972 (REVISED) 15 NOV 1994. Supersedes DD Form 1972, Apr 1975.

Figure 6-4. Joint Tactical Air Strike Request (JTAR)

JOINT AIR STRIKE REPORT			
CONTROL AGENCY (CALL SIGN)		THIS IS (CALL SIGN)	EVENT/MISSION
MISSION NO.			
1 TARGET IDENTIFICATION/LOCATION			
1	<input type="checkbox"/> (NUMBER)	<input type="checkbox"/> (COORDINATES)	<input type="checkbox"/> (TYPE)
2 TOT/TIME OF SIGHTING			
2	<input type="checkbox"/> (ON TARGET)	<input type="checkbox"/> (OFF TARGET)	
3 RESULTS			
	<input type="checkbox"/> COMPLETE	<input type="checkbox"/> PARTIAL	
	<input type="checkbox"/> NONE	<input type="checkbox"/> UNKNOWN	
	<input type="checkbox"/> DESTROYED	<input type="checkbox"/> NEUTRALIZED	<input type="checkbox"/> COVERED
	<input type="checkbox"/> (OTHER)		
4 ENEMY ACTION			
	<input type="checkbox"/> GROUND		
	<input type="checkbox"/> NONE	<input type="checkbox"/> LIGHT	<input type="checkbox"/> MODERATE
	<input type="checkbox"/> HEAVY		
	<input type="checkbox"/> (TYPE)		
5 OWN STATUS			
	<input type="checkbox"/> NO FACTOR	<input type="checkbox"/> DAMAGED	<input type="checkbox"/> (NUMBER)
	<input type="checkbox"/> LOST		
6 BINGO TIME IS (TIME)			
7 ORDNANCE REMAINING IS			
	<input type="checkbox"/> NUMBER	<input type="checkbox"/> (TYPE)	
8 WEATHER IS			
	<input type="checkbox"/> CLEAR	<input type="checkbox"/> SCATTERED	
	<input type="checkbox"/> BROKEN	<input type="checkbox"/> OVERCAST	
	<input type="checkbox"/> 1-5	<input type="checkbox"/> 5-10	<input type="checkbox"/> 10-50
	<input type="checkbox"/> 50-100		
9 REMARKS			
DATE/TIME REPORTED			NUMBER

Figure 6-5. Joint Airstrike Report Form

turned to the control of the Navy TACC, Marine TACC, TADC, or DASC, as appropriate. The Navy TACC, Marine TACC, or TADC may retain the flight airborne over an orbit point or may return it to base. The DASC's control over the flight will be as authorized by the Navy TACC, Marine TACC, or TADC.

6.7 PREPLANNED MISSION PROCEDURES

Requirements for preplanned air support missions may be established and scheduled during the planning phase or at any time during operations.

6.7.1 Request Procedures. Requests for preplanned air support missions may be originated at any command level and are submitted via the chain of command to the Navy TACC or Marine TACC as appropriate, which, after approval, passes the request to the commander providing the air support forces. Requests may be submitted either over established command communication circuits or over the communication nets of the appropriate control agencies. Positive approval at each intermediate command level is required. Air support control agencies, the SACC, FFCC, and the FSCC accomplish the required coordination of these requests in a manner similar to that used in coordinating requests for call missions. To ensure necessary coordination and proper briefing of the strike group pilots, all available target information must be forwarded with any request for a preplanned mission.

6.7.2 Authorization and Ordering. If the requested mission is approved, sufficient aircraft with proper armament are scheduled. Adequate time is allowed for the designated air support forces to be properly briefed for the attack.

6.7.3 Execution. The flight leader or the TAC(A) directs the flight. Upon entering the objective area, all flights, including those that have been prebriefed, report in to the Navy TACC, Marine TACC, TADC, the DASC (if appropriate), or FAC when the DASC is not yet ready for operation, then proceed to carry out their missions.

6.8 HELICOPTER OPERATIONS

Helicopters employed by the LF are of three types: transport, utility and attack. The first are used in the ship-to-shore movement and in subsequent operations ashore to provide tactical transport of troops and supplies, and to evacuate casualties. The second are used for reconnaissance and observation missions, front line evacuation, and liaison tasks. The third are attack helicopters for rotary wing CAS, point target/anti-armor attacks, antihelicopter operations, armed escort, FAC(A)

defense from threat fixed-wing aircraft, and visual reconnaissance.

6.8.1 Ship-to-Shore Movement. Marine helicopter units embarked in or operating from ships in the amphibious operation are organic units of the LF. The CATF is responsible for landing the helicopter-lifted unit in accordance with LF plans. Assignment of tasks to LF helicopter units must be responsive at all times to the plans and decisions of the CLF, subject to the overall authority of the CATF. During the ship-to-shore movement, the CATF exercises movement control over helicopters through his TAO. Mutual decisions to change the scheduled employment of helicopters during the ship-to-shore movement may be made by corresponding subordinate naval and CLF with the ATF, provided authority to make such changes has been delegated in the respective operation orders of the CATF and CLF, and the changes are agreed to by both subordinate commanders. Changes not mutually agreed upon will be referred to the CATF and CLF for decision. For complete details of the helicopter ship-to-shore movement, see Joint Pub 3-02, NWP 22-3, and FMFM 5-30.

6.9 COMMUNICATIONS

Air control is exercised primarily by voice radio. Procedures for the use of communications nets are contained in joint and Allied communications publications.

A comprehensive knowledge of all phases of air control is required in communications planning. The communication officers of the TACRONS and the air units involved will be included in planning conferences and discussions to plan and provide for the required facilities and additional equipment, and to foresee all possible extensions of the operations so that lack of communications will not be a limiting factor. The basic nets required in air control are in four main categories: air support and air traffic control, helicopter command and control, antiair warfare, and antisubmarine warfare. The nets listed for AAW and ASW are under the operational control of the TAC; but, because the TAO is responsible for all air operations, they are listed here as air control nets. The number of circuits needed will vary with the size of the operation.

Lost-plane procedure, numeral codes, authentication, IFF control and silence, radar, electronic countermeasures, frequency assignments, and recognition procedures will be in accordance with current publications and as directed in the appropriate appendix. A

CIRCUIT DESIGNATOR & DESCRIPTION									
<div> <div>ACTIVATION</div> <div>COLOR CODE</div> <div>FREQUENCY (JANAP 195)</div> </div>									
<div> <div>ACTIVATION</div> <div>COLOR CODE</div> <div>FREQUENCY (JANAP 195)</div> </div>									
H-1	TAC	A-1	Gold	HF-V	HF-V	HF-V	HF-V	HF-V	HF-V
H-2	TATC	A-3	Red	HF-V	HF-V	HF-V	HF-V	HF-V	HF-V
H-3	TAR	A-3	Blue	HF-V	HF-V	HF-V	HF-V	HF-V	HF-V
H-4	TAD-1	A-4	Silver	HF-V	HF-V	HF-V	HF-V	HF-V	HF-V
H-5	TAD-2	A-3	Orange	HF-V	HF-V	HF-V	HF-V	HF-V	HF-V
H-6	TAD	A-5	Green	HF-V	HF-V	HF-V	HF-V	HF-V	HF-V
H-7	HR	A-5	Brown	HF-V	HF-V	HF-V	HF-V	HF-V	HF-V
H-8	HD-1	A-2	Black	HF-V	HF-V	HF-V	HF-V	HF-V	HF-V
H-9	CV/L/L	A-3	Rose	HF-V	HF-V	HF-V	HF-V	HF-V	HF-V
H-10	LPH/L/L	A-5	White	HF-V	HF-V	HF-V	HF-V	HF-V	HF-V
H-11	HEL/L/L	A-2	Yellow	HF-V	HF-V	HF-V	HF-V	HF-V	HF-V
H-12	COM	A-2		HF-V	HF-V	HF-V	HF-V	HF-V	HF-V
H-13	FAD-1	A-1		HF-V	HF-V	HF-V	HF-V	HF-V	HF-V
H-14	UHF EMERG	A-6		HF-V	HF-V	HF-V	HF-V	HF-V	HF-V
H-15	SAR	A-1		HF-V	HF-V	HF-V	HF-V	HF-V	HF-V
H-16	SAR (HF)	A-1		HF-V	HF-V	HF-V	HF-V	HF-V	HF-V
H-17	HCMD/HA	A-1		HF-V	HF-V	HF-V	HF-V	HF-V	HF-V
H-18	HF EMERG	A-1		HF-V	HF-V	HF-V	HF-V	HF-V	HF-V
H-19				HF-V	HF-V	HF-V	HF-V	HF-V	HF-V
H-20				HF-V	HF-V	HF-V	HF-V	HF-V	HF-V

Figure 6-6. Frequency Responsibility Chart

suggested form for a frequency responsibility chart is illustrated in Figure 6-6.

6.9.1 Air Support and Air Traffic Control Nets. (See Figure 6-7.)

6.9.1.1 Tactical Air Request (HF/VHF) Net. This net is used by TACPs of the LF to request immediate air support missions. Prior to the establishment of the DASC ashore, immediate air support requests are made to the Navy TACC or TADC afloat, as appropriate. After the DASC is established ashore and becomes net control of the TAR net, all immediate air support requests are made to it.

6.9.1.2 Tactical Air Direction (UHF) Net. This net is used by the tactical air control and direction centers, DASC, TAC(A), TACP, and FAC(A) for directing and controlling aircraft in the conduct of offensive air support missions, briefing target information to air support aircrews, and assigned air support aircrews to controllers. Aircraft on these requests approaching the objective area shall report initially on the TATC net and be prepared to shift to a TAD net which is normally guarded by tactical air control parties for direction of support missions.

6.9.1.3 Tactical Air Command Net #1 (TAC #1) (HF) Net. This net is used for communications between tactical air control or direction centers and commanders of carrier task forces, groups, and units. Once the DASC is established ashore, requests for CAS beyond the capability of the DASC are referred to the Navy TACC, Marine TACC, and TADC over this net. It is intended primarily for operational command traffic.

6.9.1.4 Tactical Air Command Net #2 (TAC #2) (HF) Net. The Navy TACC, Marine TACC, and TADCs use this net for exchange of both operational and administrative traffic. The net links major control agencies and the air bases and carriers. During a large operation it is used for administrative traffic between these various units so that the tactical air command net may be reserved for purely operational traffic.

6.9.1.5 Search and Rescue (HF) (UHF) Net. This net is used for coordination of SAR missions. It is activated by all air control agencies as required and entered by ships and aircraft participating in the mission.

6.9.1.6 Guard Net. This emergency and distress frequency is used by aircraft to declare an emergency. It is guarded by all air control agencies and ships.

6.9.1.7 Tactical Air Traffic Control (UHF and HF) Net. This net will be used for exercising positive control of all aircraft traffic entering and leaving the objective area. When a flight leader reports entering the area, the TATC will give him initial instructions, such as assigning an orbit point or switching to another control net.

6.9.1.8 Tactical Air Observation (HF and UHF) Net. This net is used by the Navy TACC/Marine TACC/TADC and other subordinate control agencies for controlling the TAO, who uses this circuit for reporting action observed, information on the enemy situation, and the progress of friendly forces to the tactical air control and direction centers.

6.9.1.9 Naval Gunfire Air Spot (UHF) Net. This net provides communications between spotting aircraft and fire support ships for spotting and directing naval gunfire.

6.9.1.10 Artillery Air Spot (VHF and FM) Net. This net provides communications between spotting aircraft and artillery units for spotting and directing artillery fire ashore.

6.9.1.11 Helicopter Direction (UHF, VHF, and HF) Nets. These nets are used by the primary HDC to exercise positive control of inbound and outbound helicopters in the AOA, and by the DASC and the ASC(A) for control of helicopters in the objective area.

6.9.1.12 Helicopter Administrative (HF) Net. This net is used for administrative and logistic traffic pertaining to helicopter operations.

6.9.1.13 Helicopter Request (HF) Net. This net is used during the ship-to-shore movement of an amphibious operation by TACPs of helicopterborne forces to request immediate helicopter support from and pass information to the HDC or DASC. It is guarded by the TADC and is disestablished after the ship-to-shore phase of the amphibious assault, at which point requests for immediate helicopter support are transmitted over the TAR net.

6.9.1.14 Helicopter Command (HF) Net. This net is used by the helicopter director for communications with all ships possessing and utilizing a helicopter capability and for directing the launching of helicopters for specific missions. This net is used for the exchange of all command information between the H CMD and all ships possessing and employing a helicopter capability.

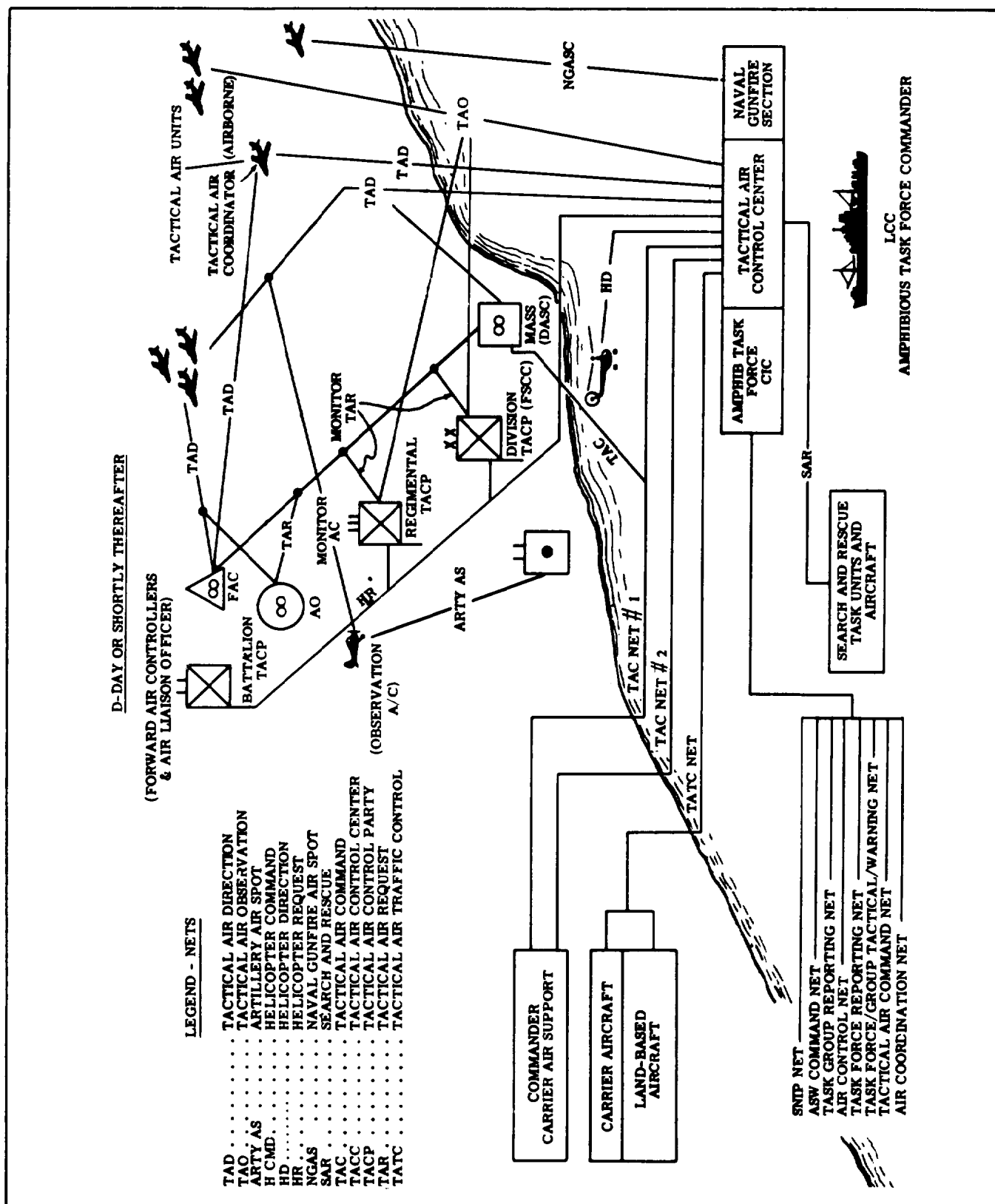


Figure 6-7. Air Support, Air Traffic Control, ASW and AAW Communications Net

6.9.2 Antiair Warfare Nets. A partial list of AAW nets required for the initial operations of the amphibious assault is shown below. See Figure 6-7. A complete list of AAW nets may be found in NWP 4, NWP 32, and FMFM 5-50.

1. Task force/group reporting
2. Task force/group tactical/warning
3. Combat information/detection reporting
4. AAW coordination
5. AAW reporting
6. SNIP.

6.9.3 Antisubmarine Warfare Nets. A primary (UHF) and secondary (HF) frequency will be assigned for control of ASW aircraft by the force CIC officer and for liaison with a support ASW force if assigned. The supporting ASW force will control aircraft on frequencies assigned in the supporting communications plan (see Figure 6-7).

6.9.4 Visual Communications. Visual communications are employed to the maximum extent possible in order to keep radio transmissions to a minimum. There is an ever-present possibility that a casualty to electronic installations will occur and leave visual methods as the only means of communication.

Visual requirements for CAS of ground troops are:

1. Marking of front lines to coordinate air strikes and reconnaissance near the front lines
2. Target designation
3. Marking of dropping areas for air supply
4. Identification
5. Indication of completion of air strike.

To accomplish the preceding, ground units are furnished panels and pyrotechnics, including smoke grenades. Distinctive bursts of artillery, mortar, or other fire also may be used.

PART III

Coordination of Supporting Arms

Chapter 7 — Concept and Planning

Chapter 8 — Execution



CHAPTER 7

Concept and Planning

7.1 CONCEPT

The basic objective in coordinating supporting arms is to ensure the most effective fire support for all elements participating in an amphibious operation. This involves the coordination of air, NGF, and artillery to ensure their economical employment, maximum effectiveness, and the requisite safety to friendly forces. This is accomplished by:

1. Acquiring and analyzing targets
2. Developing plans for coordinated action by supporting arms, including plans for the attack of all targets capable of interfering with the mission of the ATF and its elements
3. Exercising direction of the fire of supporting arms in the objective area, including supporting arm and weapon selection, measures for coordination, and safety
4. Assessing damage on the basis of reports and intelligence.

From the beginning of the ship-to-shore movement until a short time after the first wave lands, coordination of supporting fire consists principally in supervising the execution of preplanned fire and instituting modifications to schedules where necessary. As the control agencies of the LF become operational ashore, all practicable close support call fire from all supporting arms is provided as requested by troop units. Coordination problems arising in the execution of call fire should be resolved at the lowest echelon able to effect complete coordination of the particular mission.

Agencies involved in the coordination of supporting arms are authorized direct liaison for planning and coordination purposes early in the planning phase of an operation. In the planning of supporting fire, coordination of planning is accomplished as required at each level in the LF before those fire support plans that af-

fect other units are transmitted to the next higher level for similar action. All LF fire support requests for artillery, NGF, and air support, including requests for the use of nuclear weapons, are coordinated by this process.

7.1.1 Responsibility. Initially, the CATF exercises the overall coordination responsibility for the delivery of NGF, air support, and LF artillery fire, including requests for the use of nuclear weapons. When the CLF is ashore and has established the necessary facilities, and when the tactical situation permits, the CATF normally passes this coordination responsibility to him. Thereafter, the CLF coordinates the fire of all three supporting arms with troop maneuvers. Seldom, however, is complete coordination authority passed at one time. Normally, the LF assumes responsibility for various functions of fire support as the necessary capability for that function is established ashore. For instance, as soon as one battalion's FSCC is established ashore, that battalion normally can assume the responsibility for coordinating all fires in its own zone. The responsibility for the control of NGF (fire control) may be passed to the CLF also. The CLF may then be authorized to assign fire missions directly to individual fire support ships. The CATF or his designated subordinate retains responsibility for the allocation, logistics support, and operational and fire control of support ships.

7.1.1.1 Supporting Arms Command, Control, and Coordination

7.1.1.1.1 Supporting Arms Command. As the overall commander of amphibious operations, the CATF commands all elements of the ATF including the LF. As the CATF's representative agency, the SACC exercises control and coordination over the LF FFCC and, through the FFCC, its subordinate FSCCs.

7.1.1.1.2 Supporting Arms Control. That commander or agency with the authority to assign missions to supporting arms units has control of the supporting arms units. Such mission assignment may either be a

tactical mission, such as direct or general support, or for the attack of a particular target. Control of supporting arms is not necessarily vested in the supporting arms commander, nor is it always in the hands of only one agency. For example, the commanding officer of a gunfire support ship, a battery commander, and an aircraft squadron commander unquestionably have command of their assets in assigning missions or in designating where, when, or how they would fire.

a. Overall Control in Amphibious Operations.

Overall control of supporting arms in an amphibious operation is vested in the CATF. In the event that advance force operations are to be executed, overall control could be vested in the advance force commander during that phase. Upon the arrival of the CATF in the AOA and the dissolving of the advance force, the CATF would reassume overall control of supporting arms. The CLF assumes overall control of supporting arms when control is passed ashore. See Chapter 8 for a discussion of passage of control.

b. Control at Subordinate Echelons. In an amphibious operation, control of artillery, except when employed in pre-D-day operations, is accomplished by the CLF. Air and NGF control relative to tactical mission assignment normally remains with the CATF until control of supporting arms is passed ashore. Once the first elements of the LF reach the shore, that portion of control that relates to the firing of specific missions shifts to those elements. Until this point, CATF, as the publisher of the ATF air and NGF plans, exercises all control over those weapons systems. With the commencement of on-call fires, the control of supporting arms in the attack of specific targets and target areas becomes a LF responsibility when that target affects the LF.

c. Control. Control is addressed separately for each supporting arm.

7.1.1.1.3 Supporting Arms Coordination. Responsibility for coordination is always vested in the commander. During the several phases of the amphibious operation, the commander during that phase will have the overall responsibility for supporting arms coordination. Most coordination, however, will be done at subordinate echelons. Coordination is done at the lowest capable echelon. Effective coordination of supporting arms can be enhanced if senior commands encourage and permit subordinate commands to coordinate without undue interference from above, if the principles of fire support coordination are adhered to, and if fire support coordination measures are used judiciously. Coordination encompasses all supporting arms collectively. See Chapter 8 for a discussion of passage of coordination responsibility.

7.1.2 Supporting Arms Coordination Center. Upon the initiation of planning, the CATF (and attack group and/or advance force commander as appropriate) establishes a SACC. Through this agency the CATF exercises overall coordination of supporting arms planning. Upon arrival in the objective area, the SACC on the flagship of the naval commander concerned coordinates the delivery of all supporting fire. For larger operations, SACC should be on the LCC Class ship. C³I and CATF/CLF staffing requirements necessitate use of this platform. For smaller operations, the LHA, LPH, LHD, and flag-configured LPD Class may be used.

The SACC is under the supervision of the SAC, who is the direct representative of the naval commander charged with supporting arms coordination at the time. The SAC, with the advice of the LF FFC, integrates the fire plans of the supporting arms to ensure their most effective employment in support of naval operations and of the LF scheme of maneuver. The CATF may designate the LF FFC as the SAC.

7.1.3 Force Fires Coordination Center/Fire Support Coordination Center. A FFCC exists at the MAGTF level, and FSCCs exist at all levels of the GCE down to the battalion level. Through these agencies, the commanders plan and coordinate the fire of supporting arms with the scheme of maneuver. The FFC is in charge of the FFCC, and the FSC is in charge of the FSCC. The FFC/FSC is the direct representative of the commander under whom the agency is functioning. In amphibious operations, the MAGTF FFCC is designated the LF FFCC. The LF FFCC and GCE FSCC provide representatives to work in the SACC during the period before the passage of coordination responsibility to the CLF. The representatives include the LF FFC (who may serve as the SAC), the GCE FSC, the LF air officer, the LF NGFO, and the LF TIO.

As the LF FFCC, the MAGTF FFCC is a task-organized facility that includes the personnel, equipment and communications links appropriate to the fire support functions to be performed, and the tactical situation. The MAGTF FFCC is staffed using the supporting arms representatives on the MAGTF CE staff as a nucleus, with augmentation from other USMC sources and representatives or liaison personnel/teams from joint and allied forces.

Supporting arms representatives on the MEF staffs consist of artillery, air, and NFGOs. A target information officer is normally designated at the MEF levels. At the MEU level, this staffing may not include all of the above officers.

While afloat, the LF FFC receives requests from subordinate troop echelons for supporting arms not otherwise available to them or for which complete coordination cannot be effected. He coordinates these requests and advises the SAC of troop requirements for air and NGFS and the manner in which these arms should be employed to render the most effective troop support. He also keeps the SAC advised of the activities of artillery units ashore.

Coordination of LF requests for supporting fire is the responsibility of the CLF during all phases of the operation.

7.1.4 Relationships. While afloat, the FFCC and SACC function in close cooperation with each other during initial planning, pre-assault operations with the advance force, and assault operations. The SAC, with the advice of the FFC, integrates the fire plans of the supporting arms to ensure their most effective employment in support of naval operations and the LF scheme of maneuver ashore. Appropriate personnel are stationed within the SACC to provide rapid exchange of information and expedite the processing and coordination of troop fire support requests.

Some personnel of the ATF SACC and the LF FFCC normally accompany the advance force to advise its commander concerning the attack on targets of potential threat to operations and to ascertain target status at the objective. They keep abreast of the current situation and brief members of the ATF after dissolution of the advance force.

With the establishment of the FFCC ashore and assignment of responsibility for coordination of artillery, naval gunfire, and air support to the CLF, the SACC assumes a standby and monitoring status in accordance with paragraph 7.4.3.1.5.

The SACC and FFCC are not vested with command functions. They are formed by personnel assigned to their respective commanders and function as staff agencies of those commanders.

7.1.5 Types of Fire Support. Fire support delivered by supporting arms includes field artillery, naval gunfire and tactical air support.

7.1.5.1 Artillery and Naval Gunfire Support

7.1.5.1.1 Direct Support. Direct support NGF may be provided as soon as communications are established between assigned direct support ships and either shore fire control parties or other troop observers authorized as spotters. Direct support artillery fire may be provided

after the direct support artillery battalion or any one of its batteries is ashore, emplaced, ready to fire, and has established communications with artillery forward observers accompanying the supported unit.

Requests for direct support fire originating and approved within an infantry battalion are transmitted directly to the assigned direct support ship, or direct support artillery fire direction center, as appropriate. These requests normally will not be received in the SACC.

7.1.5.1.2 General Support. Requests for NGF general support are usually initiated by maneuver regimental or lower echelons of the LF when they require fire support beyond the capabilities of the ship or ships previously assigned in direct or general support.

Requests for general support naval gunfire ships are received and coordinated in the SACC. Requests for general support artillery are not normally received in the SACC. After control and coordination responsibilities have been passed ashore to the CLF, these requests are received and coordinated by the LF FFCC. Alternate means of accomplishing the task must be employed if the requested support is not available.

When artillery fire is to be employed in addition to NGF and/or air support at LF level, prior to the passage of control ashore, its coordination and integration will be effected by the LF FFC with the approval of the SAC.

7.1.5.2 Aviation Fire Support

7.1.5.2.1 Close Air Support. This may be provided as soon as communications are established between the TACPs and the Navy TACC. Forward air controllers of TACPs are in the early waves so they can be in position to assure ground control of CAS missions as early in the operation as possible. However, until the FAC is established ashore, beach preparation and other fires can be controlled by a FAC(A). With the FAC established ashore, requests for CAS will be received by the Navy TACC and must be referred to the FFC and the SAC for coordination and approval before the mission can be carried out.

7.1.5.2.2 Deep Air Support. The CATF/CLF uses DAS to shape the battlefield. DAS is employed to determine enemy operational intentions, delay enemy reinforcements, degrade critical enemy functions and capabilities, and manipulate enemy perceptions. The CLF may reduce the number of aircraft available for CAS to conduct DAS. DAS is conducted on both sides

of the FSCL. Coordination is necessary when conducting DAS short of the FSCL.

7.2 PLANNING

Supporting arms coordination planning must be conducted with the objective of producing fully integrated fire support plans. In order to employ all supporting arms with maximum effectiveness in support of the entire amphibious operation, personnel concerned with coordination of supporting arms must be knowledgeable in capabilities and limitations of assault forces to be employed, including techniques of employment, as well as arms to be employed.

Upon receipt of the directive initiating planning for an amphibious operation, CATF and CLF establish a SACC and FFCC as appropriate, to facilitate coordination of fire support planning. Liaison between these centers is established and concurrent planning is initiated. As decisions are reached by higher echelons of the ATF and landing force staffs, they must be fully promulgated to all affected units.

7.2.1 Planning Process. This involves:

1. Learning the mission and LFs scheme of maneuver.
2. Submission of EEIs and OIRs for targeting.
3. Accumulation of target data and selective assignment of supporting arms to attack targets commensurate with capability and scheme of maneuver. Target analysis and determination of time allocated for destruction or neutralization, as appropriate, is necessary to compute means required for preparation of the objective area.
4. Determination of the numbers of ships, aircraft, and artillery units required to support the LF scheme of maneuver must be made in order to integrate those requirements with naval requirements for such operations as minesweeping, SEAL operations, screening, and air defense in the objective area. These requirements are consolidated and generally stated in terms of pre-D-day, D-day, and post-D-day requirements for numbers and types of gunfire support ships, aircraft, and artillery units.
5. Preparation of instructions to ensure coordination of planning should include predetermined measures and techniques required to control and coordinate the fire support means to be em-

ployed. The steps required to ensure coordinated planning include:

- a. Establishment of precedence for detection and attack of targets
- b. Acquisition of target data
- c. Analysis of target data
- d. Determination of means required to attack targets
- e. Target classification and priority assignment
- f. Assignment of targets to prescribed supporting arms commensurate with capability and target priority (pre-D-day)
- g. Determination of supporting arms requirements to support combined amphibious task and landing force operations (D-day and post-D-day)
- h. Preparation of detailed instructions for the employment of each supporting arm to support the assault
- i. Preparation of coordinating directives to effect coordination and control of all supporting arms.

7.2.2 Principles of Supporting Arms Coordination. The following principles should be observed to ensure effective coordination of supporting arms:

1. Know and understand the commander's intent
2. Plan early and continuously
3. Exploit all available targeting assets
4. Consider the use of all available fire support means
5. Use the lowest capable echelon
6. Use the most effective means
7. Furnish the type of support requested
8. Avoid unnecessary duplication
9. Consider airspace coordination
10. Provide adequate support

11. Provide rapid coordination
12. Provide for flexibility
13. Provide for the safeguarding of friendly forces and installations.

7.2.3 Responsibility. The preparation of NGFS and air support plans for an amphibious operation is the responsibility of the CATF. These plans incorporate, as far as practicable, the LF requirements for air support and NGFS as submitted by the CLF. Fire support planning within the LF organization is a function of that command. The preparation of the artillery fire plan is the responsibility of the CLF.

7.2.4 Considerations. The factors relative to coordination to be considered jointly during planning to ensure consistent guidance are:

1. Restrictions placed on the destruction of certain types of installations and targets. All planning echelons must be cognizant of targets or types of installations that are to be fired on or destroyed on order only. The list of such targets and types of installations is compiled jointly among troop, air, and naval commanders and disseminated to all concerned.
2. Restrictions governing the use of smoke.
3. Restrictions governing the use of incendiary types of ammunition where resulting fires might be a hindrance to the execution of the troop scheme of maneuver.
4. Priorities and guidance for counterfire.
5. Policy regarding the cessation of supporting fire by gunfire support ships to provide for their own safety or the safety of amphibious shipping in the objective area.
6. Instructions for coordination of night illumination.
7. Instructions for employment of special types of fuzes and ammunition. This includes restrictions on the use of VT fuzes and special weapons in the beachhead area.
8. Special safety precautions to be exercised in the delivery of fire by all supporting arms.
9. Safety of friendly aircraft.

10. Policy regarding the use of nuclear and chemical weapons.

11. Special safety precautions to be observed in conjunction with the ship-to-shore movement and with operations ashore by helicopters.

12. The safety of friendly troops.

13. Fire support coordination measures and techniques employed to coordinate and control the fire of supporting arms.

14. Restrictions governing the use of artillery or air delivered scatterable mines to include who can authorize, and method of reporting.

7.2.5 Coordination of Support Requirements. The CLF's consolidated overall air and NGF requirements, in addition to the naval requirements, are considered by the CATF in order to determine the adequacy of the fire support ships and aircraft available. Equitable adjustments are made after a study of these requirements and the availability of means to fill them.

7.2.5.1 Tentative Allocation. Immediately after computing overall requirements, the CATF makes a tentative allocation of fire support ships and aircraft to the advance force and each attack group (if used). The CLF prepares detailed air support NGFS requirements, divided into three phases — pre-D-day, D-day, and post-D-day.

7.2.5.2 Liaison. At this stage of planning, direct liaison for planning purposes will be authorized among subordinate naval, air, and troop commands. Artillery, NGF, and air representatives from troop and naval commands involved work jointly in the preparation of their detailed fire support plans.

7.2.6 Target Classification. Targets are classified according to the effect they can impose during phases of the operation or to the degree of restriction imposed upon attack. Target classification when employed with target priority serves to determine the sequence of attack and the effect allocated to the attack.

7.2.6.1 Class A. Installations that threaten ships, aircraft, minesweeping, and SEAL operations.

7.2.6.2 Class B. Installations that threaten assault forces in the ship-to-shore movement and assault of the beach.

7.2.6.3 Class C. Installations that threaten or oppose LF operations after landing or affect the ability of the enemy to continue resistance.

7.2.6.4 Class D. Installations that will not be fired on prior to D-day.

7.2.6.5 Class E. Installations that must not be destroyed (unless specific orders for such destruction are issued by the CATF) either because of probable future use by own forces or for humanitarian reasons. These installations may be neutralized, harassed, or interdicted if they do not appear in Part VII of the target list. They may not be included in Parts I and IV of the target list.

7.2.7 Target Priority. Priority is assigned each target after analysis. It should be noted that within a single classification, priorities will differ. For example, although both a search radar and a gun emplacement may fall in Class A, it is highly probable that the search radar would be the greater initial threat and would therefore carry a higher priority than the gun emplacement.

The general policy regarding the priority of targets to be attacked by NGF and by air is announced by CATF. CLF establishes priorities among those targets of primary concern to the LF.

7.2.7.1 Priority I. Targets capable of preventing the execution of the plan of action of the ATF or its elements.

7.2.7.2 Priority II. Targets capable of immediate serious interference with the plan of action of the ATF or its elements.

7.2.7.3 Priority III. Targets capable of ultimate serious interference with the plan of action of the ATF or its elements.

7.2.7.4 Priority IV. Targets capable of limited interference with the plan of action of the ATF or its elements.

Priorities, when considered with classification, indicate a general sequence of attack and amount of effort to be allocated to the attack of a particular target.

Elements of the ATF will recommend both a target classification and a target priority when nominating targets to be included on the target list. Obviously, a target that is a Priority I target to an element of the ATF may be Priority II, III, or IV target to the ATF as a whole. General priorities for the attack of targets of opportunity, when a choice is presented, should be announced for naval gunfire and air.

7.2.8 Landing Force Fire Support Coordination Techniques. Certain measures and techniques are employed by elements of the LF down to and including the maneuver battalion to control and coordinate the fire of supporting arms. These include:

7.2.8.1 Zones of Fire. A zone of fire is an area assigned to an individual ship or unit for NGFS. Such ships or units are responsible for destroying or neutralizing known enemy installations and for attacking targets of opportunity therein. See paragraph 2.3 for a detailed description of zones of fire.

7.2.8.2 Boundaries. Boundaries designate zones of action and tactical areas of responsibility. Maneuver commanders are responsible for coordination of supporting fire within assigned zones of action as modified by the fire support coordination measures. No unit may fire across boundaries unless such fire is coordinated with the unit to which the area is assigned, or unless such fires are allowed by established fire support coordination measures.

7.2.8.3 Fire Support Coordination Measures. These measures are used to assign responsibilities for the control of fires and for the coordination of fires with maneuver. There are two types of fire support coordination measures -- permissive and restrictive. In addition, some maneuver measures other than fire support coordination measures affect the conduct of fire support coordination.

7.2.8.3.1 Permissive Fire Support Measures

a. Coordinated Fire Line. A line beyond which conventional surface fire support means (mortars, field artillery, and naval gunfire) may fire at any time within the zone of the establishing headquarters without additional coordination. It is designed to expedite fires across boundaries and to enhance rapid fire support reactions to targets in those areas. Fires short of the CFL require coordination. The CFL is usually established by regiments and divisions; occasionally, battalions may require CFLs. The line is positioned commensurate with troop safety and the need for added and responsive fire support in the zone. The CFL does not have to be located on identifiable terrain features but should be easily recognizable and identifiable by all. The plot of the CFL on charts and overlays is a dashed black line with bold letters "CFL" above the line followed by the name of the establishing headquarters in parentheses and the effective date time group below the line.

b. Fire Support Coordination Line. A line established by the appropriate ground commander to ensure coordination of fire not under his control but which

may affect current tactical operations. The FSCL is used to coordinate fires of air, ground, and sea weapons systems using any type of ammunition against surface targets. The FSCL should follow well defined terrain features. The establishment of the FSCL must be coordinated with the appropriate air commander and other supporting elements. Supporting elements may attack targets forward of the FSCL, provided the attack will not produce adverse effects on, or to the rear of, the line. Both the land force commander and joint force special operations commander should be informed (by air tasking order, for example) of attacks beyond the FSCL (especially if the ordnance used has delayed effects). Attacks against ground targets short of this line must be coordinated with the appropriate land force commander to reduce the possibility of friendly casualties. If a land force desires to shoot or maneuver beyond its lateral boundaries, it must first coordinate with the appropriate commander. (It should be noted that the FSCL is a term oriented to air-ground operations. There is no similar term used at sea.)

The FSCL allows the land force and supporting forces (to include artillery, rockets, NGF, ship-launched surface-to-surface missiles, and aircraft), to attack expeditiously targets of opportunity beyond the FSCL. Forces attacking targets beyond the FSCL must inform all other affected commanders in sufficient time to allow necessary reaction to avoid friendly casualties. In exceptional circumstances, the inability to do so will not preclude the attack of targets beyond the FSCL; however, failure to coordinate this type of attack increases the risk of friendly casualties and could waste limited resources through duplicative attack.

The FSCL is normally positioned closer to the FLOT in the defense than in the offense; however, the exact positioning is situationally dependent. The decision of where to place or even whether to use an FSCL requires careful consideration. All those involved in the decision must understand that the FSCL is a permissive fire support coordination measure used to expedite fires. Its greatest utility is in facilitating the attack of time-sensitive targets of opportunity while reducing the possibility of friendly casualties. A change of FSCL location must be transmitted in timely fashion to higher, lower, adjacent, and supporting headquarters to ensure the proper coordination of fires is employed by all controlling agencies. Interdiction can occur both short of and beyond the FSCL. However, short of the FSCL, all air-to-ground and surface-to-surface attack operations must be controlled by the appropriate land force commander.

In amphibious operations, the FSCL is normally established by the CLF after coordination with the

CATF. When air forces external to the ATF are supporting the amphibious operation, the CLF coordinates with the supporting forces through the CATF.

In addition to having the FSCL follow well defined terrain features easily identifiable from the air, the positioning of the FSCL must consider the tactical situation. This should include the scheme of maneuver or plan of defense, weather, terrain, type and source of aircraft, and overall flexibility of maneuver and fire support. A key factor is the range of LF artillery. The FSCL may be positioned at the extreme range of LF artillery, but never beyond that range, as this would result in creating a gap between LF artillery fires and the FSCL, beyond which aviation can freely engage enemy targets without coordinating with ground forces.

The location of the FSCL is graphically portrayed on fire support maps, charts, and overlays by a solid black line with the letters "FSCL," followed by the name of the establishing headquarters in parentheses above the line and the effective date-time group below the line.

c. Free-Fire Area. A specific, designated area into which any fire support means may deliver fires against known or suspect targets without any coordination between the force requesting and/or delivering the fires and the agency that established the FFA. This speeds reaction to targets in the FFA. It can be used for an area where neutralization by fire support is preferred to the use of maneuver forces or where friendly aircraft can jettison ordnance. The FFA is normally designated by a division or corps commander following coordination with the civilian authority in the area. The FFA applies to conventional fire support. On a fire support map, chart, or overlay, the area is outlined in black and the words "free-fire area" and the effective date-time group are written inside the circumscribed area. The area may also be identified by the designation of the headquarters that established it. (See Figure 7-1.)

7.2.8.3.2 Restrictive Fire Support Measures

a. Restrictive Fire Line. A line established between two converging friendly forces (one or both of which may be moving) that prohibits fires or effects from the fires across the line without prior coordination with the affected force. The RFL is established by the commander common to both forces and applies to all organic weapons, special and conventional munitions, and all exterior support agencies. The RFL is located on identifiable terrain for easy recognition by all fire support agencies and maneuver elements. In linkup operations, the RFL is moved as close as possible to the

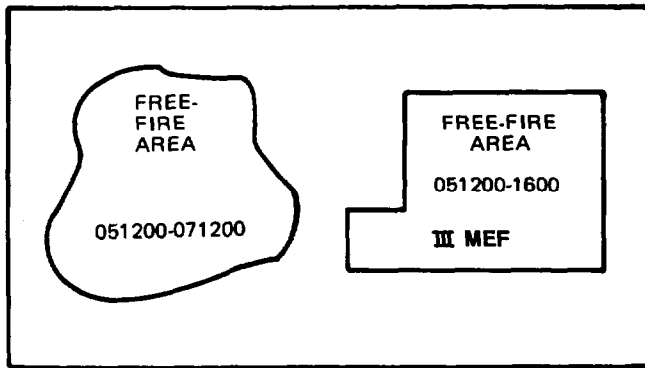


Figure 7-1. Free-Fire Areas

stationary force to allow maximum freedom of action and fire support for the maneuvering force. The location of the RFL is graphically portrayed on fire support maps, charts, and overlays by a solid black line with the letters "RFL" followed by the name of the establishing headquarters in parentheses above the line and the effective date-time group below the line.

b. No-Fire Area. A specific, designated area into which no fire support means will deliver fires and into which no effects from their fires will extend. The two exceptions to this rule are as follows:

1. When the establishing agency requests or approves fires (temporarily) within the NFA on a by mission basis.
2. When an enemy force within the NFA is engaged with U.S. (Allied) forces and, in the opinion of the maneuver commander, is a major threat to the security of forces and there is not enough time to obtain approval from the establishing agency for fire into the NFA. At such a time, the maneuver commander will engage the enemy to defend his force.

The NFA is normally established by a division or corps commander. It is established on readily identifiable terrain, but may be designated by the use of grid lines. On a fire support map, chart, or overlay, a NFA is outlined in black, and black diagonal lines are drawn through the enclosed area. The words "no-fire area" are written inside the circumscribed area, along with the effective date-time group for commencement and termination. The area should also be identified by the designation of the headquarters that established the area. (See Figure 7-2.)

c. Restrictive Fire Area. An area in which specific restrictions are imposed and into which fires that exceed those restrictions will not be delivered without

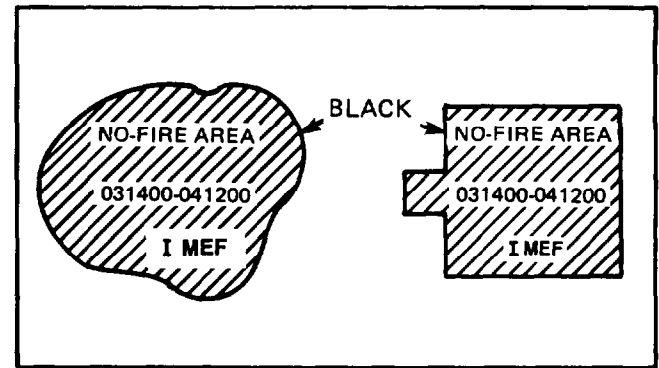


Figure 7-2. No-Fire Areas

coordination with the establishing headquarters (battalion or higher). The RFA applies to conventional ammunition outside the restrictions imposed. It is desirable that the RFA be located on identifiable terrain; however, it can be stated as a radius from a center point or by grid designation. The RFA is depicted on a fire support map, chart, or overlay by outlining the area with a black line. The words "restrictive fire area," the designation of the unit establishing the area, and the effective date-time groups from commencement to termination are written inside the area. (See Figure 7-3.)

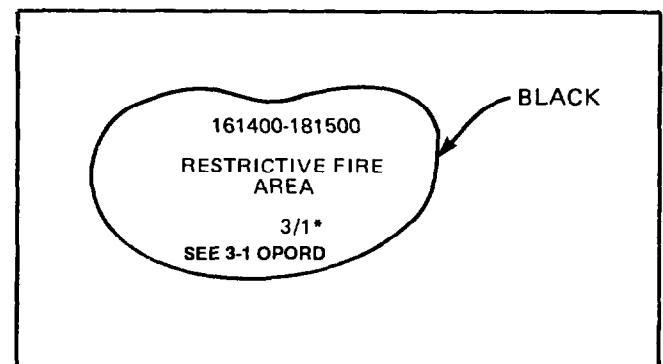


Figure 7-3. Restrictive-Fire Areas

d. Airspace Coordination Area. A formal ACA establishes a three-dimensional area or corridor of airspace that is reasonably safe to friendly aircraft from friendly surface-to-surface delivered fires while the aircraft are attacking surface targets (see Figure 7-4). Its purpose is to allow the simultaneous attack of the same target complex or targets in proximity to each other by tactical air, artillery, and naval gunfire. Formal ACAs should be used only when the risk to friendly aircraft is great enough to justify the attendant loss of surface-delivered fire support. The information published by the SACC/FFCC/FSCC employing a formal ACA includes minimum and maximum altitudes (mean sea level unless otherwise stated), length (by two coordinate points),

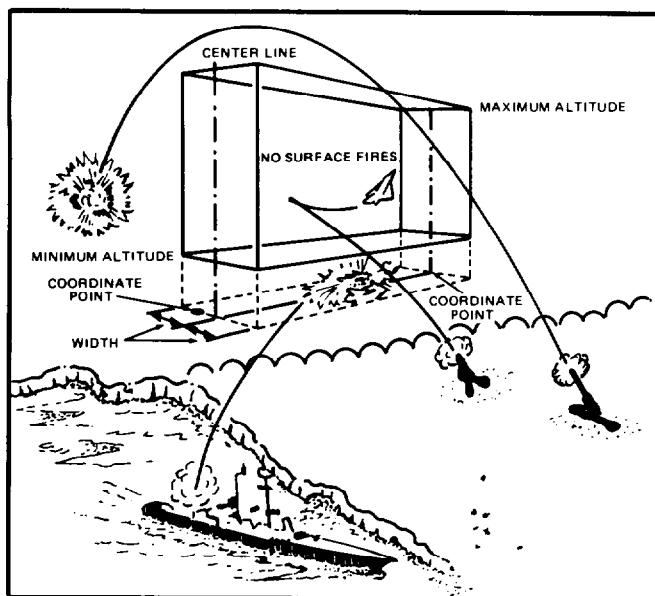


Figure 7-4. Airspace Coordination Area

width (on either side of a center line), and the effective date-time group for commencement and termination, for example:

"ACA BOZO, altitude 50 feet to 400 feet, coordinates 57429392 to 59109545, width 500 meters, effective 281400 to 281410."

It is preferable that ACAs be informal (e.g., "keep the artillery and naval gunfire north of Green River and keep the CAS to the south"). It is also appropriate to establish normal ACAs utilizing time and distance separation to provide separation between surface-to-surface and air delivered fires or by close and continuous coordination between the agencies controlling the delivery of surface fire and those controlling aircraft. Helicopter approach and retirement lanes may serve a dual purpose as designated ACAs for the period they are actually in use by helicopters in flight.

7.2.9 Employment of Other Supporting Operations. The CATF may request higher echelons to conduct general tasks or specific missions prior to the time he becomes responsible for operations in the objective area. Limitations placed upon the ATF may include insufficient forces or insufficient time to properly prepare the objective area for the landing of assault forces. Fire support planning must therefore include the consideration of supporting operations. There is a requirement that both the CATF and the CLF be informed of the status and results of such operations.

7.3 INTELLIGENCE

The acquisition of timely and accurate information concerning enemy dispositions within the objective area is of paramount importance in planning and conducting support for amphibious operations, because these dispositions determine:

1. Amount of time and forces needed for the assault
2. Type of force and support required to secure the designated objective area within the prescribed period
3. Selection of support equipment necessary to counteract enemy capability.

Note

The key to learning about these dispositions is the early submission of EELs and OIRs.

After enemy dispositions and the location of his defensive works are determined, certain installations must be destroyed to ensure the safe approach of the naval forces. Others must be neutralized to prevent disruption of the ship-to-shore movement and permit support of the landing operation and the troop advance inland.

7.3.1 Target Information Center

7.3.1.1 Target Information During Planning and Operations. During the planning phase of an amphibious operation, the TIC is formed, consisting of ATF and LF intelligence and fire support representatives. The TIC is composed of the ATF target intelligence officer, the ATF air intelligence officer, the LF target intelligence officer, the LF TIO, and appropriate assistants. If geographic separation prevents the physical establishment of a joint TIC, LF representatives will join the center upon embarkation. With the exception of the LF TIO, TIC members will normally work in the SACC of the ATF flagship. The LF TIO will normally work out of the JIC. In some circumstances, the intelligence representatives of the TIC may work from the JIC or other spaces which optimize access to, and responsiveness of, intelligence collection and analysis systems in support of the targeting process. The ATF target intelligence officer is responsible for the overall performance of the TIC and maintains close liaison with ATF and LF intelligence and operations staffs. Although the TIC is dissolved when the LF headquarters is displaced ashore, it must be prepared to resume normal operations if required.

7.3.1.2 Personnel Responsibilities. On ATF staff, the target intelligence officer of the N-2 section, under the cognizance of the N-2, is primarily responsible for processing target data on fixed targets. The air intelligence officer processes target data on the air threat and related targets and provides rapid exchange of information/intelligence between the TIC and supporting air assets. On the LF staff, the target intelligence officer of the G-2 section, under the cognizance of the G-2, is primarily responsible for processing target data on mobile targets. The target information officer of the LF staff, under the cognizance of the fire support coordinator/fire support officer is responsible for processing target data within the SACC and passing target data to supporting arms agencies and LF elements ashore. All members of the TIC are responsible for ensuring the continuous interchange of information and intelligence between the JIC, SACC, and other targeting entities within the ATF.

7.3.1.3 Sources of Target Information. Commanders of ATF components receive target intelligence and information from higher, adjacent, and subordinate commands. They initiate appropriate action to fill specific intelligence needs and maintain a continuous flow of target information (See Figure 7-5). When the ATF and LF are joined, the flow of information is from the JIC to and from the TIC, and from the TIC to and from the SACC. Information of targeting value may be received by either the JIC or SACC from external sources as indicated below.

7.3.1.3.1 Information From Staff Intelligence Personnel:

1. Location and description of targets acquired from intelligence data from higher echelons and reconnaissance reports, photo interpretation, interrogation of prisoners of war, captured documents, and so forth.
2. Damage assessment based on intelligence data from higher echelons and reconnaissance reports, photo interpretation, interrogation of prisoners, and so forth.

7.3.1.3.2 Information From Gunfire and Troop Representatives:

1. Units engaging targets
2. Type and number of rounds fired
3. Damage reports of units firing
4. New targets located by firing units.

7.3.1.3.3 Information From Air Support Section: The air support section provides the air intelligence officer with:

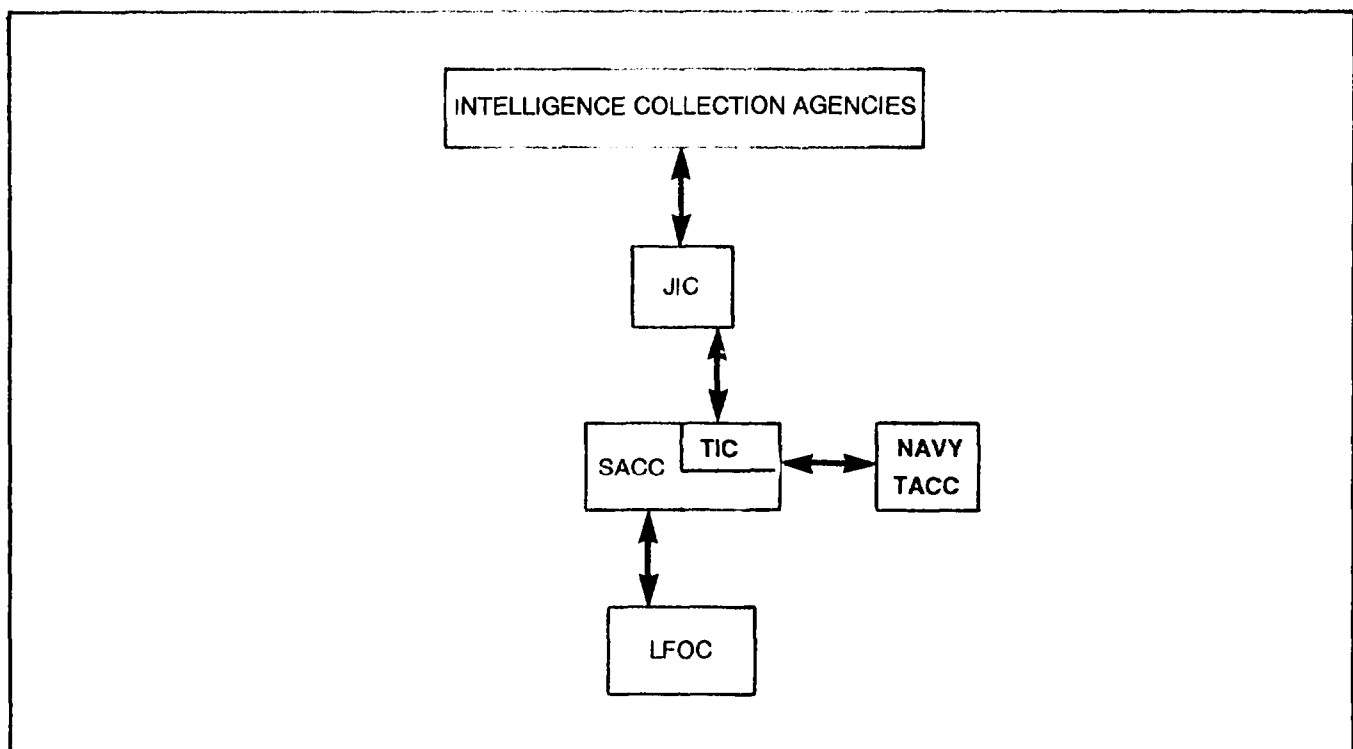


Figure 7-5. Flow of Information/Intelligence

1. Air support units engaging targets
2. Ordnance expended by number, type, and size
3. Damage reports of units firing
4. New targets located by air support units.

7.4 COORDINATION WITHIN THE OBJECTIVE AREA

Coordination within the objective area is governed by the basic principles listed in paragraph 7.2.

7.4.1 Advance Force Commander. The advance force commander is responsible for coordination of supporting arms fire until the CATF arrives within the objective area and assumes this responsibility.

Usually the first targets selected by the advance force are those that oppose the approach of ships and aircraft; the second, those that oppose such operations as SEAL and mine warfare operations; and the last, those that will oppose the subsequent landing and troop operations ashore. Coordination of the delivery of this fire is effected by the advance force supporting arms coordinator. Normally, air and NGF comprise the supporting arms available.

Only rarely during advance force operations are troop units other than amphibious reconnaissance units, SFCs, and TACP involved. LF representatives with the advance force keep themselves informed of the results of fire and make recommendations to the advance force supporting arms coordinator to ensure optimum preparation of the landing area.

In planning an advance force operation, consideration must be given to the probable limited communication and space facilities of the flagship assigned to the advance force commander.

7.4.2 Commander Amphibious Task Force. After the arrival of the CATF within the objective area and the dissolution of the advance force, support operations prior to the hour of landing consist of the destruction or neutralization of remaining or newly discovered targets and targets selected by the LF to support the scheme of maneuver. In addition, ships execute counterfire as necessary, and ships and aircraft attack targets of opportunity when practicable. Interdiction fire is delivered to isolate the battlefield. Deep supporting fire is delivered to break up troop concentrations and hinder the massing of enemy forces.

7.4.2.1 Neutralization Phase. During the pre-H-hour and post-H-hour neutralization phase, fire support ships and aircraft deliver support as prescribed in prearranged schedules. Coordination is as prescribed in those schedules, with such modifications as are recommended by the LF FFC and concurred in by the SAC. Modification of schedules, except in emergency circumstances, is made after consultation with the tactical air and CLFs, or their representatives, and is normally based on their recommendations. Prior to the landing of the first LF elements, coordinated fire lines, FSCLs, airspace coordination areas (during a helicopterborne assault), which have been preplanned, are effective.

7.4.2.2 Control Parties Ashore. After SFCs and TACPs are established with communications ashore, direct NGFS and CAS missions are conducted as requested by troop units. SFCs request fire directly from, and control the fire of, assigned direct support ships. Direct support ships will not be assigned scheduled fires after H-hour, except by the supported maneuver unit. These requests have priority over scheduled neutralization fire. CAS missions are requested by TACPs to the air support section of the Navy TACC which is located in the SACC. These missions are coordinated by the SACC. If concurred in by the LF FFC and approved by the SAC, these missions are executed.

After artillery is landed and emplaced, artillery units carry out assigned tasks in accordance with troop artillery doctrine. The FFC keeps the CATF SAC informed, as practicable, of the use of artillery in order to permit overall coordination until control of supporting arms is transferred ashore.

7.4.3 Transfer of Responsibility for Coordination. A specific command is responsible at all times for the coordination of supporting arms and this responsibility is passed from one command to another smoothly and expeditiously. Such transfer is necessary from the advance force commander to the CATF at the conclusion of advance force operations; from the CATF to the CLF when control is passed ashore; from the CLF to the CATF in the event of redeployment; and from one command to another in the event of casualty to the pertinent flagship or coordination center.

7.4.3.1 Transfer Ashore. When the situation permits, responsibility for overall coordination of close air, naval gunfire, and artillery support is passed ashore concurrently with a shift in responsibility for control of CAS and NGFS. This shift will occur upon the recommendation of the CLF and when approved by the CATF after the FFC and the DASC are established ashore and operating. Seldom is all responsi-

bility for coordination and control passed at once. Normally, it will be phased incrementally as the CLF establishes fire support coordination capability ashore. He will have control of artillery as soon as an artillery command and control capability is ashore. The capability for airspace management and control, however, will normally be one of the last capabilities to arrive ashore. The most important principle to remember is that coordination is accomplished at the lowest echelon possible. This normally means at subordinate echelons without reference either to the SACC or the senior FSACC. Under no conditions can clearance to fire into any maneuver units' zone be granted by anyone but that maneuver commander or his representative. The CATF may retain responsibility for deep air operation and NGF operations beyond the range of gunfire support ship supporting the landing force. Five distinct phases in effectively passing control of supporting arms ashore are discussed below.

7.4.3.1.1 SACC. Commencing with the arrival of the ATF in the objective area, the SACC (aboard the ATF flagship) is in control of all supporting arms. Principal members of the LF FFCC are working in close liaison with their SACC counterparts. The SACC will NOT be informed of most artillery missions. The SACC WILL be informed of unscheduled NGFS missions after the first rounds have been fired. The SACC will be informed of all air strikes by the Navy TACC.

7.4.3.1.2 Forward Echelon FFCC. Once the LF command post site has been secured, and upon order of the CLF, the LF forward echelon FFCC goes ashore and physically sets up for operations. The primary members of the FFCC remain onboard ship with their respective SACC counterparts.

7.4.3.1.3 Landing Force Commander (Ashore). Once the landing force command post and LF FFCC (as appropriate) have been established ashore, the CLF goes ashore. When the CLF considers that his command post is capable of assuming control, he will request that control be passed ashore.

7.4.3.1.4 Main Echelon FFCC. Once control of supporting arms is passed to the CLF ashore, the

members of the LF FFCC remaining aboard ship will come ashore and rejoin what is now the main echelon FFCC, bringing updated information from the SACC; that is, target list, overlays, and so forth

7.4.3.1.5 SACC (Standby Status). The functions performed by the SACC while in a standby status are:

1. Continue to guard assigned radio nets
2. Maintain status boards
3. Maintain friendly and enemy situation overlays
4. Maintain target list and target card files
5. Maintain sufficient personnel on continuous watch to resume coordination of supporting arms immediately in case of emergency.
6. The air support section continues its normal operations in controlling those supporting air functions which have not been passed to the landing force TADC/Marine TACC.

7.4.3.2 Communications. To have a complete transfer of control of supporting arms to the CLF ashore, it is mandatory that the LF FFCC be operational on all applicable nets. Minimum nets that must be in operation prior to any complete transfer of control are:

1. Artillery command/fire direction
2. Naval gunfire control nets
3. Tactical air command net
4. Tactical air direction net
5. Tactical air request net
6. Landing force fire support coordination net.

CHAPTER 8

Execution

8.1 TARGETING

Targeting is defined as the process of selecting targets and matching the appropriate response to them, taking into account operational requirements and capabilities. The purpose of the targeting process is to identify potential targets, determine their military significance and the level of damage necessary to achieve desired effects on the target, and to assign the target to the appropriate supporting arms agency. The targeting process can be broken down into a targeting sequence as follows:

1. Decide
2. Detect
3. Deliver
4. Assess.

Detailed explanations of each element of the targeting sequence are available in Chapter 4 of FMFM 6-18, Techniques and Procedures for Fire Support Coordination, and FM 6-20-10/FMFRP 6-6-20-10, Tactics, Techniques and Procedures for Targeting. The targeting sequence is divided between the target intelligence officers ATF, LF, and air, the landing force target information officer, and the SAC, who makes the decision to attack.

8.1.1 The Target List. The target list is a listing of targets which is initially maintained and promulgated by the senior echelon of command. It contains those targets that are to be engaged by supporting arms and those targets on which firing restrictions have been placed. It is not a list of targets that may be maintained by any echelon as confirmed, suspect, or possible targets for informational and planning purposes; nor is it a vehicle for dissemination of intelligence in general. CATF and CLF will establish procedures for passing control of the ATF target list from CATF to CLF as the LF phases ashore and CLF assumes control of supporting arms. Except for those cases in which the AOA is

to be disestablished, CATF retains overall responsibility for the target list and supporting arms but relies on CLF to discharge those responsibilities.

8.1.2 Selection of Targets. Prior to arrival in the objective area, the acquisition of targets and the collection of target information will be largely dependent on the intelligence collection activities of higher headquarters, as driven by ATF requests for information. The arrival of operating forces in the objective area may induce activity by previously unidentified targets. These targets should be classified and prioritized in accordance with paragraphs 7.2.6 and 7.2.7 and assigned a part number as described in paragraph 8.1.4. Information concerning new targets requires rapid dissemination through TARBULs in accordance with paragraph 8.1.7.

In selecting targets to be included in the target list, several factors must be considered.

8.1.2.1 Permanence. Since the list will usually be prepared several weeks in advance, there must be reasonable assurance that the targets listed are not of a transitory type. This does not restrict the advance force from engaging valuable targets of such nature.

8.1.2.2 Nature of Target. The nature of the target has an important influence on the decision as to whether or not it is included on the target list. Some types of targets, such as obstacles and minefields, require exorbitant expenditure of ammunition with generally inconclusive results. In addition, neutralization missions by the advance force should be limited to areas of known and important enemy activity that have a direct effect on their operations. Neutralization of suspected activity or of small troop concentrations is unprofitable and will usually have to be repeated during the assault when troops can exploit the effect of neutralization fire.

8.1.2.3 Location of Targets. Only accurately located targets should be selected for inclusion on the target list. If the location of a potential target is not precise, target acquisition efforts should be directed at a

target unless its orientation is such that it poses no threat to the LF and thus needs not be included on the target list.

8.1.2.4 Requests of Subordinate Elements. The requests of subordinate elements of the ATF must be considered. The time or means available may be insufficient to attack all targets requested and may result in the omission of low priority targets.

8.1.3 Responsibilities. The CATF is responsible for the preparation and promulgation of the target list. The JIC is responsible for collecting all available target data (target information and intelligence). The JIC provides target data (target information and intelligence) to the SAC, who is responsible for preparing the target list. The CLF and TAO assist the SAC in preparation of the target list by providing lists of targets desired to be destroyed or neutralized. The SAC assigns classification and priorities. The target list is approved by the CATF and is disseminated in the Operations Annex to the Amphibious Task Force OPORD. If the target list is to be published prior to the OPORD, it may be published as Appendix 4 to Annex B (Intelligence) of the ATF OPORD, or it may be published in the JINTACCS/JRS TARBUL message format in accordance with NWP 10-1-13 (Supp. 2). If published in the TARBUL format, it will be specifically identified as "ATF Target List" or "Notional ATF Target List" in free text or amplification sets at the beginning of the message.

As additional target data becomes available, it is passed to LF elements by the TIO. If the senior echelon of command desires a newly discovered potential target attacked, such may be ordered by including the target in the next TARBUL (for fixed or semifixed targets) or by issuing an order to attack the target as soon as possible (for a mobile target). All echelons of command within ATF are responsible for ensuring that all pertinent target information that is received by them but is not included in the original target list or incorporated in TARBULs is promptly forwarded to the commander responsible for the target list utilizing the JINTACCS/JRS TGTINFOREP format. Where use of the TGTINFOREP format would result in excessive delays, or where the new information represents a significant threat to ATF or LF elements, the information will be passed via the most expeditious means with appropriately formatted reports submitted at the earliest opportunity.

If subordinate commanders prepare a listing of targets of particular concern to their operations, care must be exercised to distinguish this listing of targets from the target list prepared by the CATF.

8.1.4 Format. The target list is subdivided into parts. This subdivision permits the grouping of targets according to the general time of attack and the desired effect.

8.1.4.1 Parts of the Target List. Each part lists targets for attack during the operational phase designated:

Part I — Targets designated for destruction during supporting or pre-assault operations.

Part II — Targets designated for neutralization during supporting or pre-assault operations.

Part III — Targets designated for harassment or interdiction during supporting or pre-assault operations.

Part IV — Targets designated for destruction by the ATF.

Part V — Targets designated for neutralization by the ATF.

Part VI — Targets designated for harassment or interdiction by the ATF.

Part VII — Restricted targets to be attacked only on order of the CATF or CLF, as appropriate.

After D-day the use of parts is discontinued. Targets added to the target list on D-day and thereafter, and targets remaining on the list (those which have not been destroyed, overrun, or deleted for other reasons), can be consolidated without regard to parts. Some other system could be substituted if desired.

8.1.4.2 Detailed Data and Entries. The specific information included in the target list will be as required for the JINTACCS/JRS TARBUL format described in NWP 10-1-13 (Supp. 3), with the additional element of target elevation.

8.1.4.2.1 Target Numbers. Target numbers are assigned by the headquarters that first identifies a potential target. If a potential target is designated for attack by the headquarters controlling the target list, it will retain the target number assigned by the headquarters that first identified the potential target.

Each target, whether area or point, is assigned a target number. Each target number may be assigned to one target only. Any other target, even though it is at the same approximate location, must be given another number.

Adherence to the following rules will aid in ensuring that target numbers are not repeated except when a specific target at a specific location is reactivated:

1. If evaluated intelligence shows that a target is nonexistent, the target number is canceled.
2. If two targets appear to be identical but are indicated as being in different locations, each is given a target number. If further evaluation shows only one of the locations to be correct, the target number of the other is canceled. If evaluation shows that both are incorrect but the target is at another location, a new target number is assigned for the new and correct location, and the target numbers of the two incorrect targets are canceled.
3. If a target is reported as destroyed or not in use and the target number is cancelled, but the same target is later reported active at the same location, the original target number will be reactivated as provided for in the JINTACCS/JRS TARBUL message format.

This method of numbering may lead to a greatly expanded target list, but it ensures that all possible targets are accurately identified and ultimately engaged.

The CATF will allocate the target designations to be used by the SACC, the landing force, and other subordinate elements, in accordance with Appendix D. When assigned, these target numbers will identify targets on the target list and targets for which target cards are prepared. The same target number will be used to identify those targets on the target list which are included in the fire plans of the supporting arms.

In addition to the general rules shown in items 1, 2, and 3 above, each target will be assigned a target number when a target card is prepared and the target is plotted on the target overlay.

8.1.4.2.2 Grid Coordinates. The military grid reference system is used in giving the coordinates of a target. Locations are shown on maps and charts printed with either the universal transverse Mercator or universal polar stereographic grid system. These maps and charts are used for joint planning and operations. For operations within very large amphibious objective areas, targets located beyond the range of naval gunfire and artillery fire will be shown on aeronautical charts of 1:1,000,000 and larger scale. Locations will be given in geographic coordinates.

8.1.4.2.3 Description. The description of the target will be brief. Dimensions of installations and calibers of guns, when known, must be included.

8.1.4.2.4 Altitude. The altitude of the target is given in the same units of measure as the contour interval specified on the map from which the target location was determined.

8.1.4.2.5 Classification. The classification of targets is given in accordance with the instruction in paragraph 7.2.6 and Joint Pub 3-02.

8.1.4.2.6 Priority. The assignment of a priority for attack on a specific target within the parts of the target list is made in accordance with the instructions in paragraph 7.2.7.

8.1.5 Target List Maintenance. The target list may be compiled from target card files or automated data processing systems and will be transferred, physically or electronically, to the responsible commander each time responsibility is transferred.

8.1.5.1 Target Information Included. The target file is maintained to keep target intelligence and/or information in an orderly manner and to facilitate preparation of the target list and target bulletins.

The target files may contain many targets which, because they are not susceptible to artillery, air attack, and NGF, or because attack on them would not be profitable, are not published on the target list. Many targets may be based on information only not on target intelligence and subsequently placed in the inactive file. Other targets listed in files are those from the enemy situation overlay, which is maintained in SACC. The overlay may show many targets that will not appear on the target list, but any target on the overlay must be covered by information in the target files.

8.1.5.2 Format. Target cards may be arranged as shown in Figure 8-1. When entering the source and date of target information, the data included will be such that reference can be made to the original source if need for verification arises. Targets may be derived from target dossiers of higher echelon in addition to the ATF target number. See also paragraph 8.1.8.

On the reverse side of the card, in the "Damage Reported" column, is entered the report of the damage estimated by an observer or by the unit engaging the target. The "Damage Assessed" column is filled in by the target intelligence or target information officer

CONFIDENTIAL

TARGET CARD

TARGET NO. _____ GRID COORD'S _____

CLASSIFICATION _____ ELEVATION _____

PRIORITY _____ MAP NO. _____

DESCRIPTION _____

ASSIGNED TO: () AIR () NAVAL GUNFIRE () FIELD ARTILLERY
() OTHER SUPPORT WEAPONS

(CHECK ONE)

SOURCE AND DATE OF INFORMATION _____

PHOTO NO. _____ PHOTO COORD'S _____

[illegible]

after evaluation of unit reports, photointerpretation, and information from other available sources.

8.1.6 Control and Maintenance of the Target List.

The CATF is responsible for promulgation and initial control of the target list. He continues to receive the major portion of intelligence when the advance force commander departs for the objective area and therefore retains control of the list. He also continues his responsibility for the issuance of target bulletins until the advance force commander arrives in the objective area.

When the CATF arrives in the objective area, responsibility for the target lists and bulletins reverts to him. He retains this responsibility until the CLF moves ashore and assumes control of air and naval gunfire support (NGFS) and responsibility for maintenance of the target list and bulletins. The target information organization of the CATF continues to function to ensure the flow of target information. During this phase the CATF must be prepared to resume responsibility for the target list and issuance of target bulletins in case of emergency.

8.1.7 Target Bulletins. The commander responsible for maintaining the target list keeps other interested commanders informed of all changes to the list by means of information messages designated as target bulletins.

8.1.7.1 Numbering of Bulletins. Target bulletins are consecutively numbered during an operation. The commander issuing the first bulletin labels it "Target Bulletin Number One." His last bulletin carries the notation "Final Bulletin" in addition to the bulletin number assigned. The next commander to issue a target bulletin assigns the next unused number, and when he issues his last bulletin he indicates that it is the final one. The same procedure is used each time the target list is transferred from one commander to another.

8.1.7.2 Action Addressees. The commanders included as action addressees on target bulletins are:

1. Task force and task group commanders interested
2. Aircraft carriers furnishing aircraft for operations in support of the landing
3. Fire support ships
4. Sea-air-land (SEAL) units and ships in which they are embarked
5. Troop reconnaissance units and ships in which they are embarked
6. Other designated elements of the landing force.

standard message text format. See NWP 10-1-13. On occasion the following information and formatting may be used:

1. Serial number of the bulletin.
2. New targets discovered, part number to indicate the assignment of the target to a specific part of the target list, target number, location, description, altitude, classification, and priority.
3. Damage assessment of targets attacked since issuance of last bulletin. For targets not completely destroyed, indicate the estimated percentage of damage.
4. Cancellation and reactivation of targets.

Example:

TARBUL FIVE

1. NEW TARGETS. PART ONE NY1092-52250465-COAST DEFENSE GUN-FIVE METERS-ALFA-ONE. PART ONE NY1093-624576-90 MM AA GUN-10 METERS-ALFA-ONE. PART TWO NY1103-42056185-COVERED MACHINE GUN EMPLACEMENT. 2 2 METERS-BRAVO-THREE.
2. TARGETS DESTROYED. PART ONE NY1017, NY1026 AND NY1038.
3. TARGET DAMAGED. PART TWO NY1032 - 80 PERCENT.
4. CANCEL TARGETS NY1005 AND NY1009.
5. REACTIVATE TARGETS NY0932/PART ONE AND NZ1002/PART THREE.
6. THIS IS MY FINAL TARBUL.

8.1.8 Target List Cross Reference Index.

Since many targets may be derived from target dossiers prepared by higher echelons, a cross-reference index will be issued with the target list to relate ATF target numbers to target numbers used by of free text sets or amplification sets in the higher commands for designating the same target. Use cross-reference index to be transmitted simultaneously with the initial target list as well as with each subsequent target bulletin. Care should be taken in assigning a security classification to such

indexes, and distribution should be limited to major components of the ATF.

8.1.9 Target Damage Assessment. It is essential that TDA be passed back on all air, NGF, and artillery missions. The data is required to update, re-evaluate, and prioritize the enemy threat. TDA on target list targets is passed back to the command exercising control over the target list.

8.2 THE SUPPORTING ARMS COORDINATION CENTER

The organization of the SACC is essentially the same on each level of command. However, variations in individual operations require that SACC organizations be planned to fill specific needs. The organization described is therefore to be used only as a guide. All necessary modifications will be made when planning a SACC to meet the requirements of a specific operation.

8.2.1 Organization. The SACC (Figure 8-2) is under the supervision of the ATF SAC, who is responsible for the coordination of NGF, artillery, and CAS.

8.2.1.1 Naval Gunfire Section. This section is manned by members of the staff of the CATF (advance force/attack group). The section operates the NGF control net and monitors other gunfire nets in readiness to assume the functions of an attack group SACC if attack groups are being used. LF representatives perform advisory and liaison duties.

8.2.1.2 Air Support Section. This section is manned by members of a TACRON, the control agency of the TAO if assigned. This section functions as part of the TACC, controlling supporting aircraft or transferring control to subsidiary tactical air direction controllers ashore or afloat. Members of the staff of the CLF at stations in or near the SACC will perform advisory and liaison duties.

8.2.1.3 Target Information Center. The TIC is responsible for target information and intelligence. It is manned by the ATF target intelligence officer, ATF air intelligence officer, landing force target intelligence officer, landing force TIO, and other assistants as necessary. See paragraph 7.3.1.

8.2.1.4 Coordination of Artillery. Coordination will normally be effected by the SAC through the LF representatives. Such coordination is effected through the LF FFC, LF artillery officer, and/or GCE representative. LF representation will be in the SACC until coordination of all supporting arms in the LF area has been passed ashore. The SACCs role in the coordination of

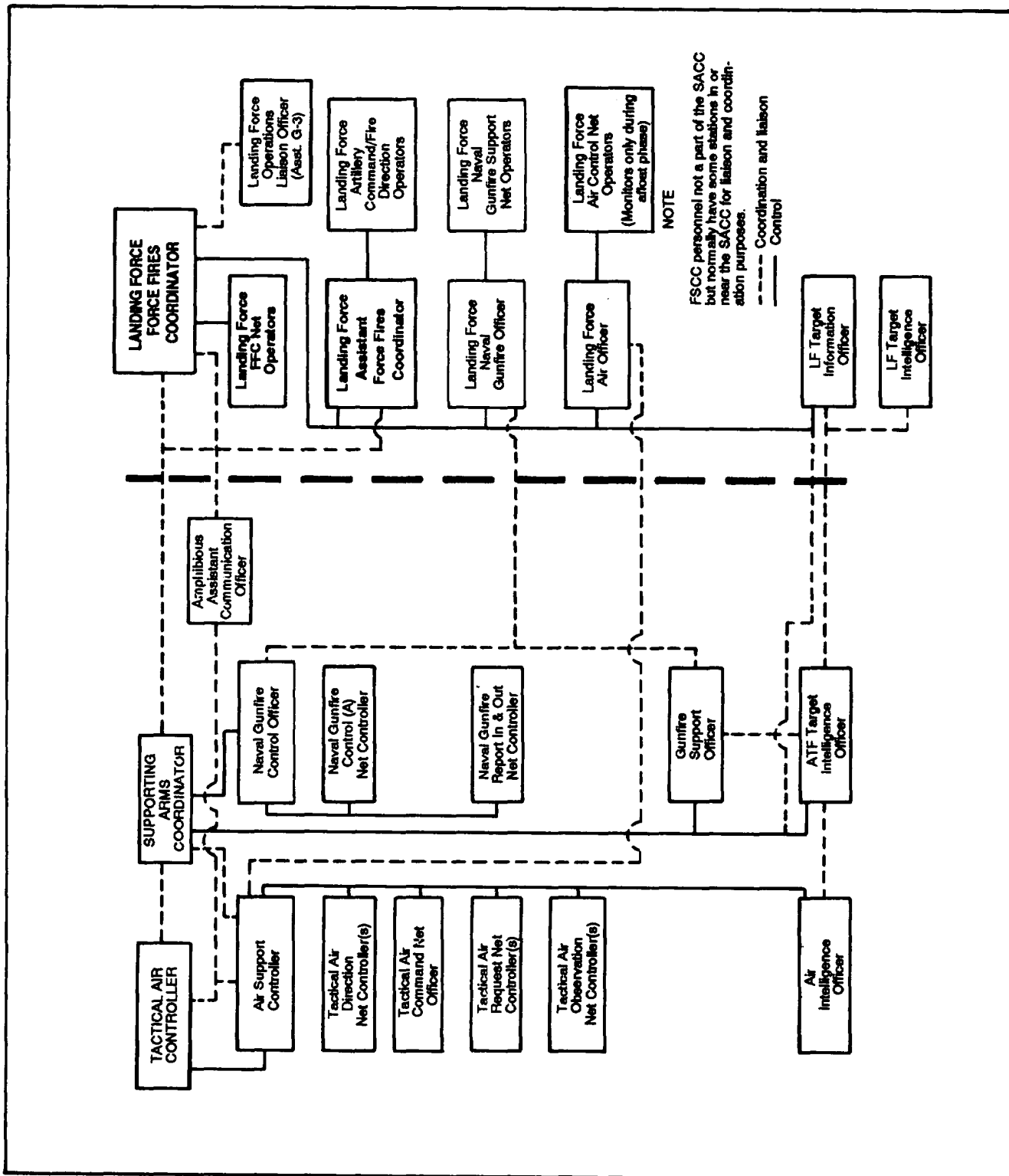


Figure 8-2. Functional Organization for Supporting Arms Coordination Center (Amphibious Task Force)

artillery is normally very limited. All requests for artillery support or clearance for artillery missions can be accomplished by the senior FFCC/FSCC ashore or even by lateral coordination between adjacent units when their common senior FFCC/FSCC is not yet ashore. Example of the need for SACC involvement would be coordination of SEAD fires or imposition of an ACA to permit transit of strike aircraft.

8.2.2 Supporting Arms Coordinator. The SAC exercises general supervision over the activities of the SACC (Figure 8-3). In carrying out this responsibility, he represents the CATF in effecting overall coordination of fire delivery by naval gunfire units, support aircraft, and artillery units, and keeps him informed of developments and requirements.

To ensure proper coordination, the SAC assumes responsibility for preparation and any necessary modifications of the NGF plans and for carrying out those plans. He coordinates requests with the LF FFC and the TAO when such requests require coordination of the delivery of fire. He also works with the LF FFC and TAO to supply the supporting arms which are requested by the LF.

During operations, the SAC normally obtains the concurrence of the LF FFC regarding the means of attack prior to engaging high priority targets and supervises the preparation of plans for the use of nuclear weapons.

8.2.3 Afloat Duties of the Force Fires Coordinator. The LF FFC in the SACC:

1. Coordinates requests for artillery, air, and NGFS from LF units.
2. Presents consolidated requests for NGF and air support to the SAC, indicating which requests will be modified in the interest of furthering the ground plan of attack.
3. Advises the CLF on support of LF units by artillery, NGF, and aircraft and keeps him informed on matters within his cognizance. Also indicates his concurrence or nonconcurrence in any ACAs resulting from requests for air strikes and advises artillery when these areas are in effect.
4. Advises the SAC, as practicable, concerning the use of artillery in order to permit coordination of

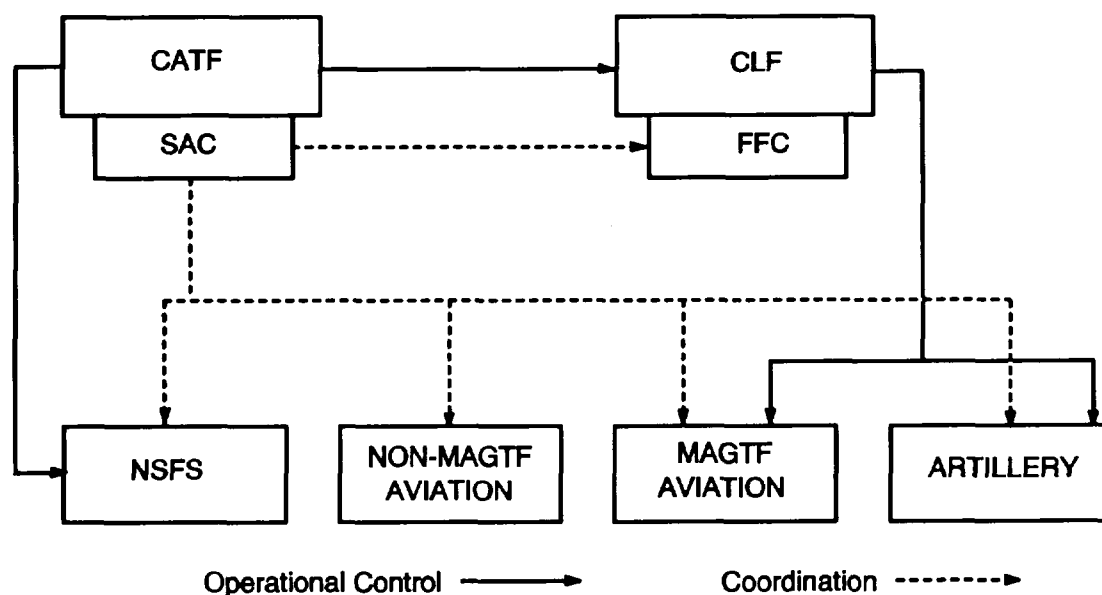


Figure 8-3. Control and Coordinator Relationships (Prior to Passing Any Control and Coordination Functions Ashore)

fire delivery by NGF units and support aircraft with artillery fire.

8.2.4 Force Fires Coordination Center Liaison Personnel. Under the supervision of the fire support coordinator, certain personnel of the LF FFCC are stationed in the ATF flagship and serve in a liaison capacity (Figure 8-2). Their location in the ship depends on the space arrangement. As long as there is a need for some of these personnel in SACC, the number stationed in the flagship should be kept to the minimum consistent with the performance of liaison duties. The FFCC personnel that may be in the SACC are:

1. LF FFC
2. Landing force artillery officer (if different from LF FFC)
3. MAGTF element representatives as required (e.g., GCE, CSSE)
4. Assistant landing force fire support coordinator
5. Naval gunfire officer
6. Air officer
7. Assistant air officer
8. Fire support coordination chief
9. Operations liaison officer (assistant G-3)
10. TIO
11. Landing force fire support coordination net operators
12. Landing force artillery command/fire direction net operators
13. Landing force naval gunfire net operators
14. Other reps as required.

See FMFM 6-18 for detailed explanation of the duties of these personnel.

8.2.5 Duties of Personnel. Titles and duties of personnel in the NGF and air support sections and the TIC of SACC are shown in Figure 8-4.

8.3 PROCESSING NAVAL GUNFIRE SUPPORT REQUESTS

NGFS requests are considered in terms of assigned tasks. The following articles explain the origin of the requests and the units responsible for the support.

8.3.1 Direct Gunfire Support. Requests for direct support originate at the infantry battalion level of the LF and are transmitted to the direct support ship assigned to the unit (see Figure 8-5). The requests may be originated by:

1. The NGF spotter, over the assigned NGF ground spot net, or the air spotter, over the NGF air spot net, to the direct support ship. The battalion NGLO monitors these nets and may disapprove or modify requests when necessary.
2. The battalion NGLO, over the assigned NGF ground spot net, to the direct support ship.
3. The artillery forward observer can pass fire requests directly to the ship or via the battalion FSCC. Prior to the landing of the artillery unit in direct support, and if the ship cannot enter the artillery conduct of fire net, fire requests may be passed from the forward observer to the direct support ship via the artillery officers and NGLOs at the infantry battalion headquarters.

The direct support ship carries out the requested task, with the ground or air spotter adjusting the gunfire. As soon as practical, the firing ship reports the commencement and completion of nonscheduled missions to the agency controlling NGF. See procedure outlined in paragraph 3.5.9.1.

8.3.2 General Gunfire Support. Support is given on request of the NGF representative of the unit to which the ship is assigned for general support — that is, infantry regiment, division, or LF. Requests are made by use of the division NGF support net. Requests by subordinate LF echelons for general support are made by LF communications circuits, the division NGFS net, or both, to each successive higher echelon for fulfillment of the request at a level at which a general support ship is available.

If general support ships are not available to meet the request, or have not been assigned prior to the passing of control of NGF ashore, the FFC submits a request to the SAC for assignment of a ship or assignment of the specific task. The processing of such requests in the SACC is shown in Figures 8-6 and 8-7.

A. NAVAL GUNFIRE SECTION		
(1) NAVAL GUNFIRE CONTROL OFFICER		
Supervises execution of naval gunfire support plan.	Directs execution of special gunfire plans such as defense against mechanized attack and other emergency tasks.	Ensures internal transmission of essential information regarding naval gunfire support.
Directs assignment of fire support ships and units to areas, duties, and tasks; supervises rotation, relief, and reassignment of fire support ships.	Directs assignments and functioning of amphibious task force naval gunfire personnel attached to SACC.	Maintains gunfire support overlay on master situation map on supporting arms operations table.
Prepares and submits to supporting arms coordinator modifications necessary to gunfire plans in order to meet landing force requirements.	Advises and assists supporting arms coordinator and keeps him informed of status of execution of naval gunfire support plan.	Ensures keeping of ammunition expenditure records.
	Works closely with landing force naval gunfire officer.	Assists supporting arms coordinator in preparing plan for use of nuclear weapons.
(2) GUNFIRE SUPPORT OFFICER		
Assists supporting arms coordinator in planning and executing naval gunfire support plans.	Works with naval gunfire control officer in keeping gunfire support operations overlay up-to-date.	Maintains gunfire status board.
Maintains close liaison with landing force naval gunfire officer.	Ensures that all pertinent information received over gunfire nets is disseminated to all interested troop personnel.	Assists supporting arms coordinator in preparing plan for use of nuclear weapons.
(3) NAVAL GUNFIRE CONTROL (A) NET CONTROLLER		
Transmits orders as directed and passes pertinent information over net; receives reports, requests, and information from stations on net; controls net.		Maintains records required in execution of his duties.
		Performs watch and other duties as may be assigned.
(4) NAVAL GUNFIRE CONTROL (B) NET CONTROLLER		
Transmits orders as directed and passes information over net; receives reports, requests, and information from stations on net; controls net.		Maintains records required in execution of his duties.
		Performs watch and other duties as may be assigned.

Figure 8-4. Personnel Duties (Sheet 1 of 6)

A. NAVAL GUNFIRE SECTION (Concl.)		
(5) NAVAL GUNFIRE REPORTING IN-AND-OUT NET CONTROLLER ¹		
Transmits orders as directed and passes information over net; receives reports, requests, and information from stations on net; controls net.	Releases air spot planes when relieved and returns them to tactical air control (or direction) center control for departure to base.	Maintains records and status boards as required in the execution of his duties.
Assigns air spot planes to specific fire support ships and shore fire control parties as directed, briefs planes on location of targets, front lines, zones of action, etc.	Coordinates his instructions to air spot planes with those of the tactical air controller.	Performs watch and other duties as may be assigned.
(6) SEAL TEAM COMMAND NET CONTROLLER ²		
Receives reports, requests, and information from stations on net.	Keeps SEAL commander informed regarding the status of naval gunfire and air plans (and artillery when available) in support of SEAL operations.	<p>Informs the supporting arms coordinator on progress of SEAL operations.</p> <p>Maintains such records and status boards as required.</p>
(7) AMPHIBIOUS ASSISTANT COMMUNICATIONS OFFICER		
Supervises communications personnel to ensure efficient functioning of supporting arms circuits.	Supervises the training of communications personnel assigned to supporting arms coordinator center.	Makes recommendations on matters pertaining to naval and landing force communication circuits within supporting arms coordination center.
(8) MONITORS		
In order to provide a chronological, verbatim record of all traffic on naval gunfire control nets (A and B), naval gunfire reporting in/out net, and similar nets activated for specific	operations as outlined in NWP 4, a multi-channel, magnetic tape recorder will be used to monitor these nets. This recorder should be capable of automatic activation by audio signal to conserve	tape and eliminate need for editing. If such recorders are not available, personnel must be assigned as net operators capable of maintaining a chronological verbatim text of all traffic on these nets.

¹ In a small operation, the functions of this controller may be carried out by the tactical air traffic control net controller.

² Manned by representative of SEAL unit and only in use when required SEAL operations.

Figure 8-4. Personnel Duties (Sheet 2 of 6)

B. AIR SUPPORT CONTROL SECTION ¹

(1) AIR SUPPORT CONTROLLER

Supervises the air support control section and advises the supporting arms coordinator on the use of close air support (CAS) aircraft.	Receives and consolidates daily air support requirements and presents them to the tactical air controller for assignment and entry into the daily air schedule.	Recommends aircraft munitions loading for assigned targets.
Evaluates tactical air requests (TAR) received from the landing force tactical air control parties over the TAR net.	Relays emergency requirements for CAS aircraft to the tactical air controller (TAC).	Supervises the control of all aircraft assigned to the air support control section and coordinates their operations with other sections of the TACC.
Coordinates all TARs with other members of the supporting arms coordination center.	Maintains liaison with landing force air officer to ensure most effective delivery of air support.	

(2) ASSISTANT AIR SUPPORT CONTROLLER

Under air support controller, exercises supervision and direction over the use of all aircraft allocated to the section.	Briefs tactical air coordinator (airborne), flight leader and forward air controller (airborne) on conduct of air request missions.	Advises the air support controller on the use of support aircraft.
Assigns aircraft for strike and support tasks.	Advises the air support controller of the status of execution of air support mission.	Supervises the conduct of the tactical air direction controller controllers.
Assigns support aircraft to a tactical air direction controller.		

(3) TACTICAL AIR DIRECTION CONTROLLERS²

Control all aircraft assigned them by the assistant air support controller and assign missions and targets as directed.	Transmit air raid warning conditions to aircraft under their control.	Record damage assessment reports and other pertinent information from support aircraft and disseminate the information to all interested individuals.
Brief flight leaders on conduct of air request missions assigned.		
Pass control of air support flights to tactical air control parties for individual tasks.		

¹ Normally located in SACC

² The number of tactical air direction controllers is determined by the number of support aircraft to be controlled.

Figure 8-4. Personnel Duties (Sheet 3 of 6)

B. AIR SUPPORT CONTROL SECTION ¹ (Cont.)		
(4) TACTICAL AIR REQUEST NET OPERATORS³		
Maintain communications with tactical air control parties ashore.	Relay reports of results of air missions to air intelligence officer for appropriate dissemination.	Receive front line positions and ground situation report for relay to air intelligence officer.
Receive, record and initiate processing of requests for air support missions.	Pass air raid warning conditions to tactical air control parties ashore.	
(5) TACTICAL AIR OBSERVER NET OPERATOR⁴		
Maintain communications with tactical air observers.	Relays to fire support coordination center all information received, especially progress of ship-to-shore movement and advance inland; enemy locations and activity; target damage assessment, and additional information which may be required by the task force and landing force commanders.	Advises the air support controller of activities of tactical air observers.
Transmit orders to and receive reports from tactical air observers.		
(6) AIR INTELLIGENCE OFFICER		
Assists in preparation of plans to gain and maintain air superiority.	Recommends order usage on targets both preplanned and TARs.	
Prepare air target list.	Coordinates with both ATF and LF intelligence officer.	
Prepare and maintain a current plot of friendly landing force positions ashore.	Pass intelligence received from airborne sources to appropriate agencies.	
Evaluate TARs for completeness, accuracy and priority.		
(7) INTELLIGENCE SITUATION PLOTTER		
Assists the AIO in maintaining an air target list, relays information received through air control sources.	Maintains intelligence charts and intelligence plots as directed.	
Plots and records all information received through air control sources.	Assists in consolidating target damage assessments reports from air strikes.	

³ The number of tactical air request nets in use is determine by the size of the landing force.

⁴ The number of tactical air observer nets is determined by the number of tactical air observers employed. TAO nets operators are furnished by the TAC, however, the TAO net belongs to the landing force and is monitored by the TACC.

Figure 8-4. Personnel Duties (Sheet 4 of 6)

B. AIR SUPPORT CONTROL SECTION ¹ (Concl.)		
(8) STATUS BOARDKEEPER		
Maintains status boards as directed.		
C. HELICOPTER COORDINATION SECTION		
(1) HELICOPTER COORDINATOR		
Supervises the helicopter coordination section and advises the TAC and SAC of the employment of helicopters.	Maintains an up-to-date status on the helicopter assaults taking place during the ship-to-shore movement.	Acts as SAR helicopter coordinator redirecting assets in support of SAR operations as required.
Evaluates employment of helicopter forces redirecting assets as required by the CATF and CLF in support of the scheme of maneuvers.	Employs helicopters assigned administrative duties in the most effective manner through consolidation of requests.	Coordinates helicopter operations with the supporting arms coordination center.
Evaluates requests for support received over the helicopter admin/request net from the landing force.	Schedule all VIP helicopter lifts for the CATF.	
(2) HELICOPTER COMMAND NET OPERATOR		
Maintains communications with helicopter direction centers, helicopter coordinator (airborne) and other helo platforms.	Keeps the helicopter coordinator informed of the conduct of the ship-to-shore movement and any matters affecting it.	Issues instructions and information to the HDC as directed.

Figure 8-4. Personnel Duties (Sheet 5 of 6)

C. HELICOPTER COORDINATION SECTION (Concl.)		
(3) HELICOPTER ADMIN/REQUEST NET OPERATOR		
Maintains communication with the helicopter direction center, other helicopter platforms and all supporting units assigned.	Relays all request to the helicopter coordinator for evaluation and/or processing.	Relays helicopter status and flight information to all interested units.
(4) HELICOPTER DIRECTION MONITOR NET OPERATOR		
Monitors the helicopter direction net prepared to assume control in the event the HDC loses communication.	Reports all helicopter activity to the helicopter coordinator that could effect accomplishment of the mission.	Advises the helicopter coordinator of any unusual movement of helicopters in their operations.
Monitors all helicopter operations maintaining up-to-date plot of all airborne helicopters and their escorting aircraft.		
(5) HELICOPTER TRAFFIC/SAR MONITOR		
Monitors task force land/launch common to provide traffic control for inter-ship operations when required.	Monitors flagship land/launch to provide traffic information as required.	Advises the helicopter coordinator on the status of inter-ship transfers.
D. TARGET INFORMATION CENTER		
Keep SACC informed of the status of known high priority targets.	Prepare the target list in accordance with information received from JIC and SAC.	Prepare target bulletins for dissemination.
Maintain enemy situation overlay on master situation map.	Keep JIC informed of all intelligence information received over fire support nets.	Maintain close liaison with air intelligence officer.
Prepare and maintain target cards on all known targets.		

Figure 8-4. Personnel Duties (Sheet 6 of 6)

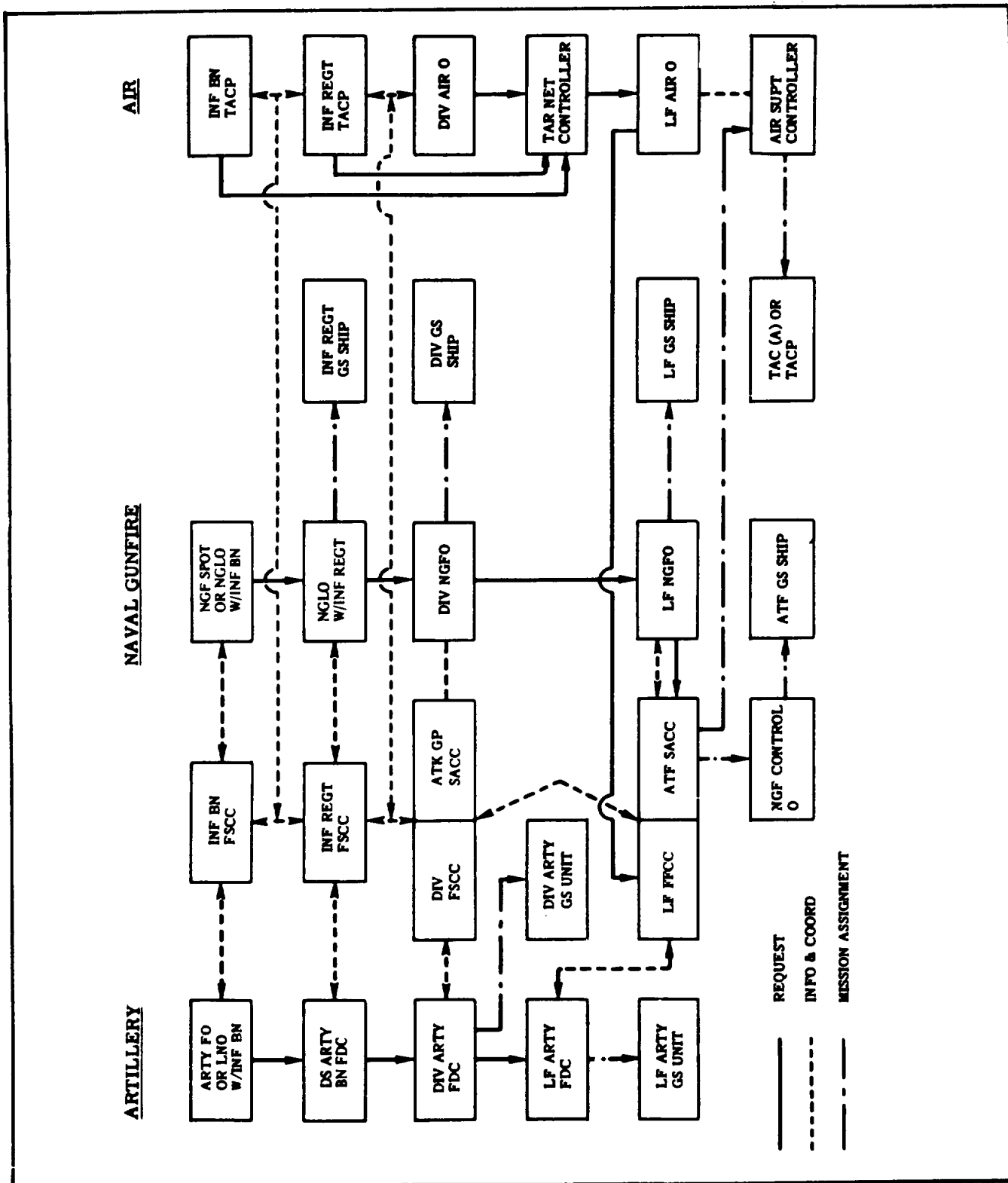


Figure 8-5. Typical Request Channels for General Support Naval Gunfire, Artillery and Close Air Support Missions

8.3.3 Consolidated Future Support Requirements. Requests of this type, resulting from the development of integrated fire plans which have been coordinated with projected landing force operations, include NGFS requirements which cannot be filled by assigned direct support ships. They also include special requirements, such as types and amounts of ammunition necessary for the provision of desired support during the night or on the following day.

Requests originate with the lower echelons of the landing force. At each command level, the NGLO (naval gunfire officer) consolidates the requests for NGFS and, in consultation with the air liaison officer (air officer) and artillery liaison officer (artillery officer), integrates these requests with those for air and artillery support. Any conflicts are resolved by the FFC. In the process of integration, undesirable duplication of fire support effort is eliminated, and the maneuver unit operations officer (S-3 or G-3 as appropriate) at each echelon ensures that requirements are adequate to support the scheme of maneuver.

The consolidated fire support requirements are finally presented by the LF FFC to the CLF to ensure that they are adequate to support the planned landing force scheme of maneuver. When the fire plan is approved by the CLF, the consolidated requirements are submitted to the SAC for approval.

If the NGFS available falls short of requirements, the CLF must be notified so that he may render a decision relative to the priority of fire for subordinate elements of the LF. After differences between requests for and availability of NGFS have been adjusted, requests approved by the SAC are passed to the NGF control officer for preparation of detailed instructions to fire support units and ships. The instructions are promulgated over the NGF control nets.

8.4 PROCESSING AIR SUPPORT REQUESTS

Methods of requesting various types of offensive air support while the Navy TACC controls air support and the SACC has responsibility for coordination are described in the following paragraphs. Details of air support requests are found in Chapter 6.

8.4.1 Close Air Support. Immediate requests for CAS are transmitted directly to the air support section of the Navy TACC located in the SACC of the ATF flagship. These requests may be originated by FACs or the air

officers of the landing force TACPs at infantry battalion and regimental levels and by air officers of higher echelons. All TACPs monitor the request and higher echelons may cancel, modify, or by their silence signify approval of the requests of lower echelons.

The processing of air requests within the SACC is shown in Figure 8-8. The steps shown will be carried out, whenever possible, simultaneously by SACC personnel to keep response time to an absolute minimum. As each request is recorded, the air intelligence officer performs the duties shown in part (6) of Figure 8-4.

The support request is also given to the target intelligence officer who enters the target on the enemy situation overlay. The LF air officer and the NGF control officer concurrently check the request for interference with other firing being executed and pass it to the LF FFC, who coordinates it with other LF requests. It is then passed to the SAC. If the execution involves the imposition of an ACA, the concurrence of the FSC is necessary.

After approval by the SAC, the request passes to the air support controller for execution. At this time the TACP is notified of the approval of the request and the approximate time for execution. The air support controller assigns aircraft, prescribes armament and expenditure, and forwards the plan for support to the tactical air direction net controller.

Pilots of assigned aircraft and the TAC(A) are briefed on details of the mission (Figure 8-9). This briefing may be conducted while airborne en route to the target. When practicable, the TAC assigns control of the aircraft to a FAC if he is in position to take control and has satisfactory communications. The TAO may be briefed on the operation and requested to observe and assist the aircraft in locating the target.

The flight leader reports initiation and completion of attack to the air support section. Target damage assessment is reported by all concerned to the air support section of Navy TACC in the SACC. The information is recorded on the joint air strike report form (Figure 6-8) together with the ammunition expenditure. The form is returned to the air intelligence officer, who enters the information on the target card and enemy situation overlay if appropriate. The results of the strike are disseminated to the interested activities.

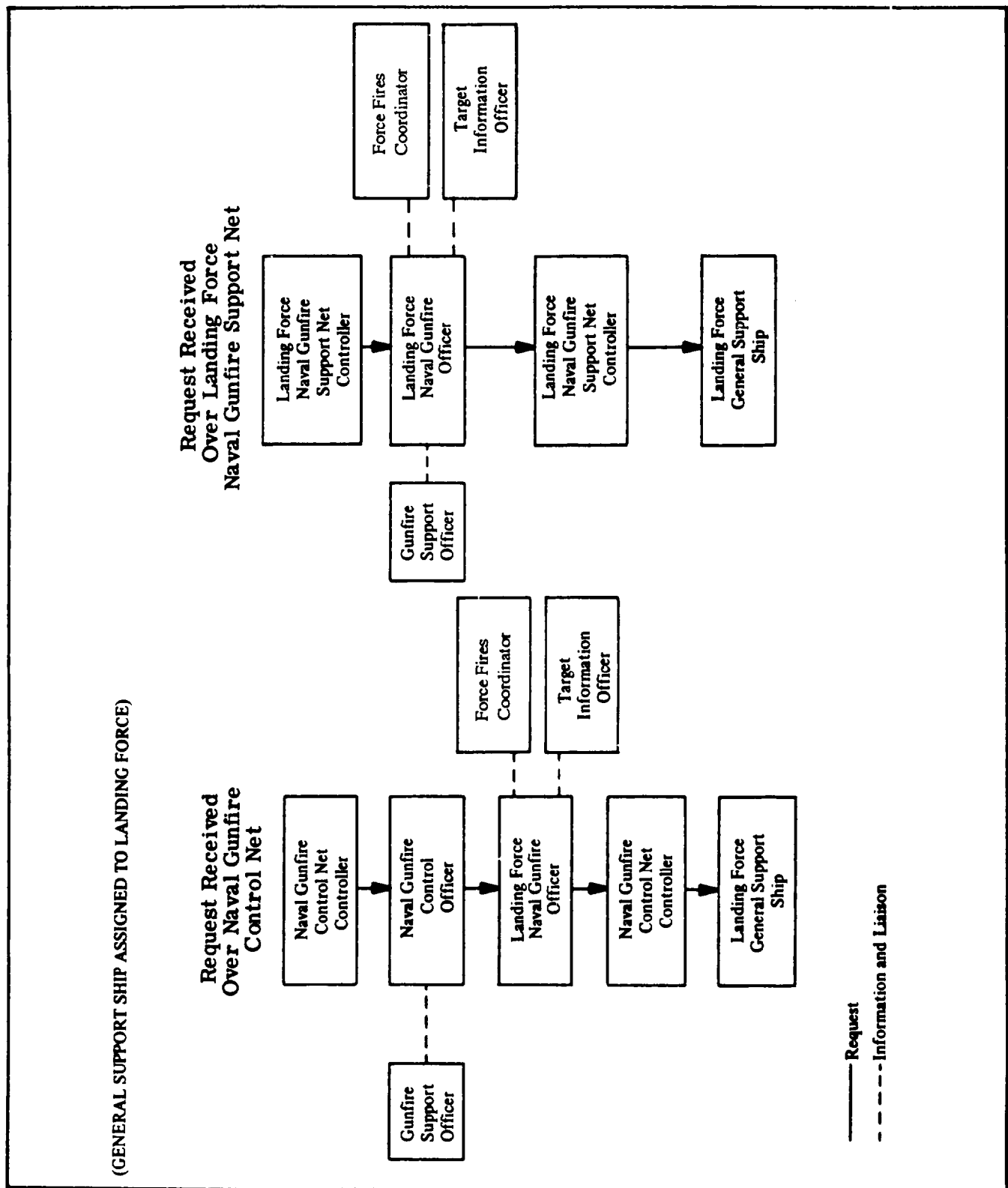


Figure 8-6. Flow Chart for Naval Gunfire Support Mission Requests in the Supporting Arms Coordination Center (Amphibious Task Force)

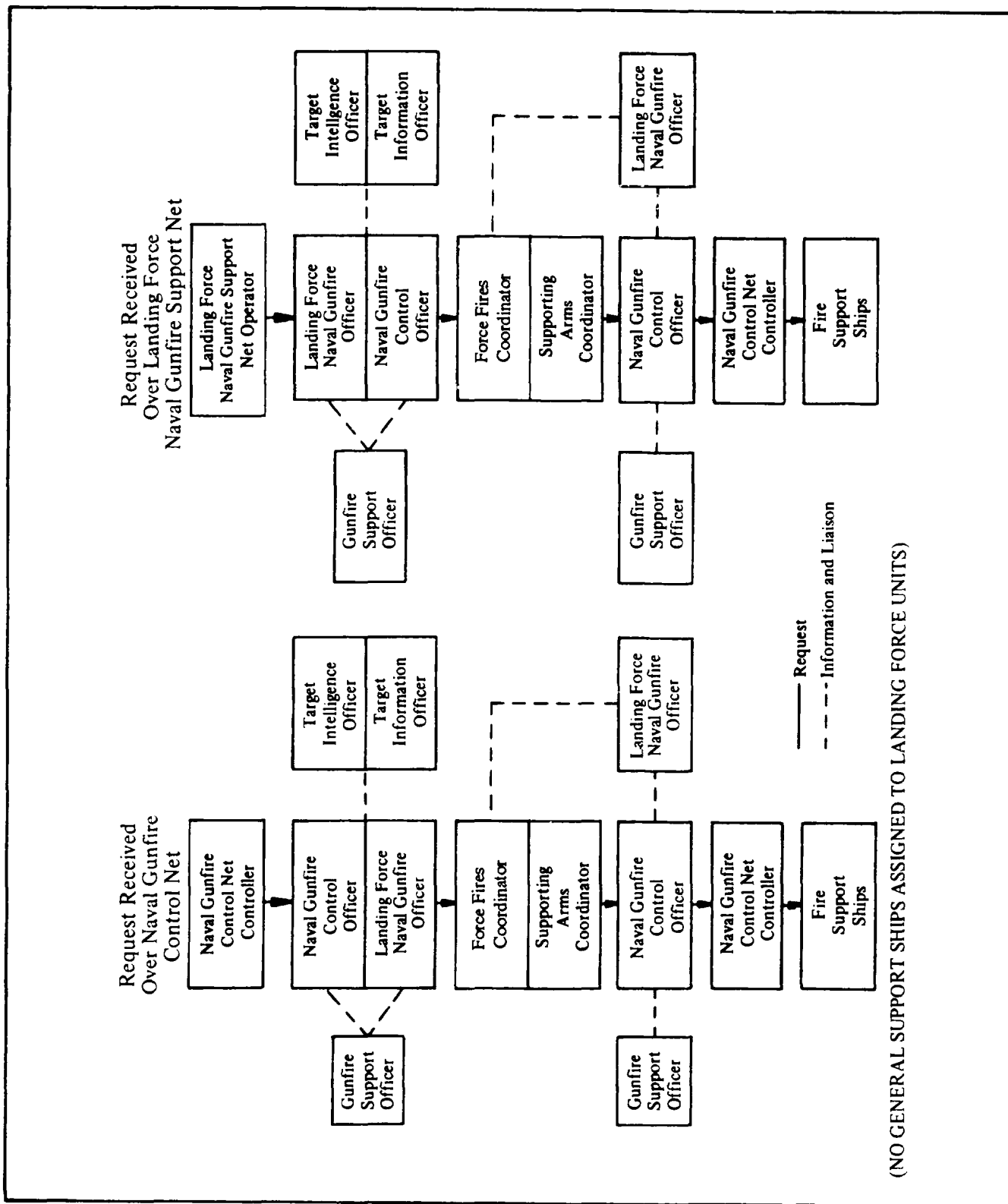


Figure 8-7. Flow Chart for Naval Gunfire Support Mission Requests in the Supporting Arms Coordination Center (Amphibious Task Force)

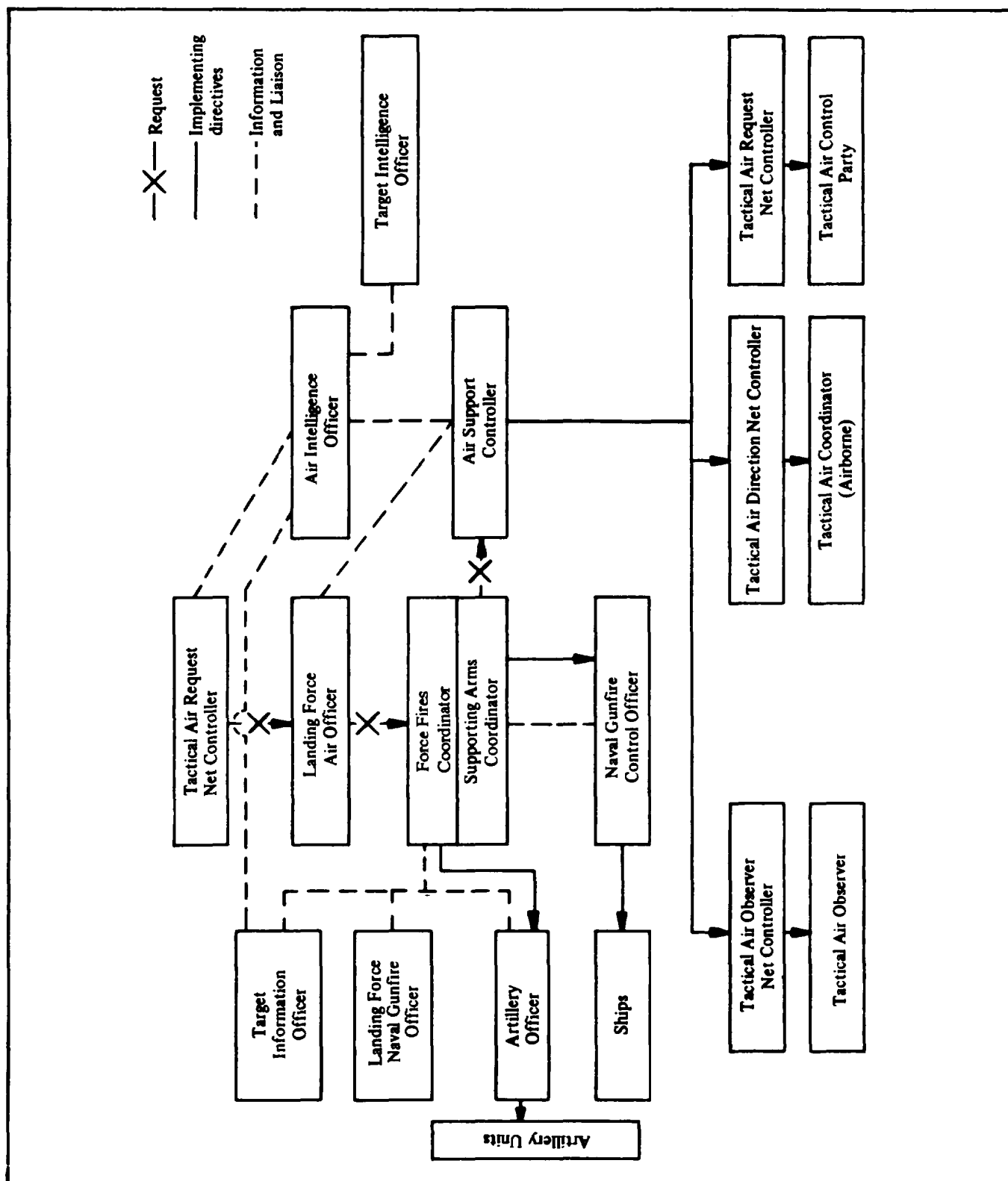


Figure 8-8. Flow Chart for Air Support Mission Requests in the Supporting Arms Coordination Center

1. **Has the MAGTF FFCC established communications with appropriate agencies based on the fire support coordination functions it will conduct? These agencies include as a minimum the GCE(s) FSCC, MACCS agency, ACE, CSSE, and SACC.**
2. **Has the GCE FSCC established communications with appropriate agencies (e.g., SACC, MAGTF FFCC, subordinate FSCCs, senior artillery FDC, DASC) on all required nets?**
 - LF force fires coordination
 - Div/regt fire support coordination, as applicable
 - LF arty command/FD
 - NGF control
 - NGF support
 - NGF air spot, as required
 - Tactical air command
 - TAR/HR (may be separate)
 - TAD
 - TATC
 - Helicopter direction
 - Helicopter coordination
 - LAAD weapon control
 - Liaison/ANGLICO, as required
3. **Do FFCC/FSCCs have current status on:**
 - Fire support coordination measures in effect?
 - Planned fires?
 - Friendly artillery units?
 - NGF ships?
 - Tactical situation?
 - Current target list?
4. **Are appropriate liaison personnel established in FFCC/FSCCs?**
5. **Is the MACCS (e.g., DASC, Marine TACC) have the current status on:**
 - Fire support coordination measures in effect?
 - Friendly artillery positions?
 - Enemy antiaircraft locations?
 - Air requests?
 - Airborne aircraft?
 - Alert aircraft?
 - UAV, air defense and weapon control conditions, other pertinent friendly positions?
6. **Are required messages for transfer of coordination and control ashore addressed to all concerned commands?**

Figure 8-9. Sample Checklist for Passing Control and Coordination Ashore

8.4.2 Air Support Beyond the Fire Support Coordination Line. The FSCL allows aviation units to attack expeditiously targets of opportunity beyond the FSCL without excessive coordination. When aircraft attack targets beyond the FSCL, the ACE commander must inform all other affected commanders in sufficient time to allow necessary reaction to avoid friendly casualties. In exceptional circumstances the inability to do so will not preclude the attack of targets beyond the FSCL; however, failure to coordinate this type of attack increases resources through duplicative attack.

Air support tasks involving the use of ACAs are cleared with the LF FFC and, if control of supporting arms has not been transferred ashore, approved by the SAC. Assignment of aircraft, briefing of air support groups, and reports of damage are made in the same manner as in a close air support task.

8.4.3 Preplanned Air Support Requirements. Requirements of this type include air strikes coordinated with projected LF operations, support aircraft for the following day's operations, reconnaissance missions, and other special tasks. They originate in the lower echelons of the LF and proceed through the chain of command to the LF air officer. At each command level, the air liaison officer or air officer consolidates the requests for air support and, in consultation with the NGLO and the artillery liaison officer (fire support coordinator), integrates these requests with those for NGF and artillery. Undesirable duplication of fire support effort is thereby eliminated, and the consolidated and coordinated fire plan is examined by the LF operations officer (G-3) to ensure its adequacy to support projected troop operations of the unit involved. At LF level, following approval by the LF operations officer, the air officer prepares plans, schedules, and special requirements, which are submitted to the tactical air controller for approval and coordination with other projected air operations within the ATF area of responsibility. Should troop air support requirements exceed the means available, the CLF recommends which requests will be given priority.

8.5 PROCESSING ARTILLERY SUPPORT REQUESTS

Processing of these requests is a LF function, and the information contained in this section concerns one method of handling artillery requests. Requests for artillery support are coordinated with air and NGFS in the SACC when coordination cannot be accomplished at lower echelons.

8.5.1 Direct Support. Requests for direct support originate at the maneuver company, battalion, or regimental level and are transmitted to the artillery fire direction center assigned in direct support of the requesting unit. These requests may be originated and transmitted as follows:

1. By artillery forward observer over the artillery COF nets.
2. By the maneuver battalion artillery liaison officer over the COF net or battalion FD net. The liaison officer monitors the COF net and may cancel, modify, or initiate requests as necessary. The FD net may also be used.
3. By the maneuver regiment artillery liaison officer over the battalion command net. The liaison officer monitors the net and may cancel, modify, or initiate requests as necessary.
4. By the artillery air observer, over the artillery air spot net, to the fire direction center of the direct support artillery.

Coordination of direct support artillery fire is accomplished at battalion and/or regimental headquarters of the supported unit. The direct support artillery executes the requested mission, conducted by the forward observer or air observer. On completion of the mission, the observer reports the results to the fire direction center of the direct support artillery.

When a maneuver regiment is in reserve or otherwise not committed to action, the artillery battalion that would ordinarily be in direct support may be assigned a reinforcing or general support-reinforcing mission, reinforcing the fire of another artillery battalion. In either case, the reinforced battalion may make requests for fire directly to the reinforcing battalion.

8.5.2 Reinforcing, General Support/Reinforcing, and General Support

1. Requests for general support/reinforcing fires are made directly from the reinforced artillery unit to that artillery unit which is reinforcing. Requests are normally made on the reinforced artillery unit's FD net.
2. Requests for general support/reinforcing fires are processed by the artillery unit given the mission of GS/R, in priority: from the LF artillery headquarters, the reinforced artillery unit and its own observers.

3. Requests for general support artillery fire are made directly to the LF artillery headquarters, which then directs those fires over the artillery fire direction net.

8.5.3 Consolidated Future Support Requirements. These requests result from the development of integrated fire plans that have been coordinated with projected troop operations. They may include:

1. Request for artillery support of a maneuver regiment that cannot be filled by the direct support artillery. Such requests are submitted by the direct support artillery to the fire direction center of division artillery.
2. Requests for artillery support of a division that cannot be filled by organic artillery or by artillery units assigned to reinforce the requesting division. Such requests are submitted by the FD center of division artillery to force (landing force) artillery headquarters.

Requests for future support by artillery units (such as night harassing or interdiction fire, illumination fire, and preparation fire for future attack) will be consolidated and coordinated with future support requests for air and NGFS at each infantry echelon from infantry battalion upward. At each LF echelon, the consolidated and coordinated fire plan is examined by the operations officer (S-3 or G-3, as appropriate) to ensure its adequacy to support projected troop operations of the unit involved. At LF level, requests of major subordinate units are consolidated, coordinated, and presented by the LF FFC to the CLF (operations officer, G-3) who examines the fire plan to ensure its adequacy to support projected troop operations. Following approval by the CLF, necessary coordination of the delivery of fire by NGF and air support with artillery fire is effected in the ATF SACC, when such responsibility is exercised afloat. Plans are then prepared and orders issued to the participating artillery, NGF, and support aircraft units.

8.6 TRANSFER OF CONTROL AND COORDINATION OF SUPPORTING ARMS

8.6.1 Responsibility. The CATF has overall responsibility for control and coordination of supporting arms in an amphibious operation. Because of the nature of an amphibious operation, supporting arms control and coordination may be passed from command to command within the ATF. A specific command must always be responsible for these functions, and the passage of responsibility from one command to another must occur smoothly and

expeditiously. Planners must provide for this passage of responsibility to designated commands:

1. During advanced force operations
2. When the LF is withdrawn
3. For the passage of control and coordination to the LF for subsequent operations ashore
4. In the event the flagship or other coordination center becomes a casualty
5. In the event the FSCC ashore becomes a casualty.

8.6.2 Passage of Responsibility. As the assault progresses and the landing force coordination agencies are established and become operational ashore, the responsibility for control and coordination of supporting arms is passed ashore incrementally.

8.6.2.1 Passage of Control. Control of air and NGF is initially with CATF. CLF controls artillery through the GCE commander. When necessary facilities of CLF are ashore and functioning and the tactical situation permits, CLF requests that control of NGF and/or air be passed ashore. The necessary facility for control of NGF is the LF/MAGTF FFCC. Air control is normally phased ashore as MACCS facilities become functional. The DASC is normally the first major MACCS agency ashore.

8.6.2.1.1 Passage of Control of NGF. It is not always possible for CATF to transfer control of NGF ashore because of the requirement for many of the gunfire support ships to accommodate other missions than support of the LF. Even when control is passed to CLF, CATF normally retains responsibility for:

1. Allocation of available fire support ships
2. Logistics support of fire support ships
3. Operational control other than fire control.

8.6.2.1.2 Passage of Control of Air Support. Frequently CATF will initially transfer control of OAS and retain control, at least temporarily, of the other aviation functions. When this occurs, CATF will apportion and allocate between the various mission requirements, just as the MAGTF commander does when he controls all air support. CATF then provides an allocation of sorties for OAS to CLF who, in turn, allots sorties to his subordinate commanders. This process is usually repeated every 24 hours. It is important for the LF FFC

in the SACC to ensure that CATFs staff is aware of the landing force's projected OAS requirements for the next 24 hours when CATF makes his apportionment decisions.

8.6.2.2 Passage of Responsibility for Coordination of Supporting Arms. CLF exercises responsibilities for the coordination of supporting fires through the FFCC, FSCCs and MACCs agencies. Each agency must ensure it has the required information and communications before fire support coordination responsibility is passed. Since most of the coordination in operations occurs in GCE FSCCs, the establishment and functioning of these agencies are critical to the passage of responsibility for coordination of supporting arms. When the GCE commander is confident that he has the necessary facilities (i.e., the GCE FSCC), communications, and information to conduct coordination of fires within the GCE area of influence, he so informs CLF. (See para. 8.6.3.) Similarly, as the ACE commander is confident that he has the necessary facilities (e.g., the DASC), communications and information, he also informs CLF. Because the various functions of aviation may be phased ashore incrementally, the ACE commander specifies those aviation functions he has the capability to coordinate.

As the GCE and ACE command and control elements are being established ashore, and as permitted by the tactical situation, the MAGTF CE begins establishment of the MAGTF COC ashore. Some LF/MAGTF FFCC personnel move ashore and establish the LF/MAGTF FFCC.

Remaining LF/MAGTF FFCC personnel continue to man spaces in the SACC to assist the SAC in fire support coordination. Such coordination includes fires to support deep, close and rear operations as required. As GCE FSCCs become functional ashore, the need for coordination of fires for close operations is reduced. When the MAGTF CE is ashore and functional, and CLF has received notifications that the GCE and ACE command and control facilities are functional, CLF submits a request to CATF to assume responsibility for the coordination of supporting arms.

8.6.3 Formal Messages for Passing Coordination and Control of Supporting Arms. Formal messages mark the completion of each step in the sequence of passing coordination and control of supporting arms. Often the actual transfer of responsibility is requested and granted by voice radio transmission followed with formal messages.

8.6.3.1 Landing Force. When the GCE commander is satisfied that GCE FSCC is functional and can con-

duct fire support coordination, he notifies CLF by message. When the ACE commander is satisfied that he has appropriate air command and control agencies that are functional, he notifies CLF by message of those aviation functions he is prepared to control. As additional air command and control agencies are established and the air command and control system gains the capability to control additional functions, similar messages are transmitted.

8.6.3.2 CLF. When the GCE and ACE commanders have submitted their messages, the MAGTF FFCC is ashore and functional and the checklist in Figure 8-9 can be satisfactorily completed, CLF will send an appropriate message to CATF requesting responsibility for control and overall coordination of supporting fires in the AOA. (Figure 8-10 is an example of this message.)

8.6.3.3 CATF. When CLF has notified CATF that he is prepared to exercise control and/or overall coordination, CATF indicates his approval by transmitting a message to CLF. (Figure 8-11 is an example of this message.)

8.6.3.4 Upon Approval. Upon approval of the passage of control and overall responsibility of supporting arms, CLF completes the sequence by notifying the GCE and ACE of the date and time specified for the passage to occur. (Figure 8-12 is an example of this message.)

8.6.4 Evolution of Fire Support Coordination in Amphibious Assault. The process described in paragraph 8.6.3 is for official passage of responsibility for the overall coordination of supporting fires in the AOA from the ATF to the LF. Before this takes place, however, subordinate units will have begun coordinating supporting fires within their own boundaries and with adjacent units.

The principles of fire support coordination apply to all types of combat, including amphibious operations. Three of the most important principles are to:

1. Provide for flexibility
2. Use lowest capable echelon
3. Provide rapid coordination.

None of these principles could be achieved if all routine fire support coordination, particularly in the often intense combat of an amphibious assault, required ship-to-shore radio communications with the SACC.

To facilitate fire support, units coordinate fire missions and air strikes in their own zones without

FM: CTG ONE TWO FOUR (CLF)
TO: CTF ONE TWO SEVEN (CATF)
INFO: TF ONE TWO FOUR (ALL LF UNITS)

BT

CLASSIFICATION # N03500 #

REQUEST FOR TRANSFER OF RESPONSIBILITY OF CONTROL AND FOR OVERALL COORDINATION OF SUPPORTING FIRES.

1. LF READY TO ASSUME RESPONSIBILITY FOR CONTROL OF NGF AND OAS AND OVERALL COORDINATION OF SUPPORTING FIRES. REQUEST SUBJ CONTROL AND COORDINATION BE PASSED TO CLF.

BT

Note: The request for the transfer of responsibility for control and coordination functions may be made by separate messages as necessary facilities are established. Specific aviation control functions may be stated.

Figure 8-10. Sample Message for CLFs Request for Passage of Responsibility for Control and Overall Coordination of Supporting Arms

FM: CTG ONE TWO SEVEN (CATF)
TO: CTF ONE TWO FOUR (CLF)
INFO: TF ONE TWO SEVEN (ALL CATF UNITS)
CTG ONE TWO FOUR PT ONE (GCE)
CTG ONE TWO FOUR PT TWO (ACE)
CTG ONE TWO FOUR PT THREE (CSSE)

BT

CLASSIFICATION # N03500 #

**PASSAGE OF RESPONSIBILITY FOR CONTROL AND FOR OVERALL
COORDINATION OF SUPPORTING FIRES TO CLF.**

**1. AS OF (DTG) CTF ONE TWO FOUR ASSUMES RESPONSIBILITY FOR
CONTROL OF NGF AND OAS AND OVERALL COORDINATION OF
SUPPORTING FIRES IN THE AOA.**

BT

Note: CATF may state specific control functions to be passed.

**Figure 8-11. Sample Message of the Passage of Responsibility for Control
and Overall Coordination of Supporting Arms to CLF**

FM: CTF ONE TWO FOUR (CLF)
TO: CTF ONE TWO FOUR PT ONE (GCE)
CTG ONE TWO FOUR PT TWO (ACE)
INFO: CTF ONE TWO SEVEN (CATF)
CTG ONE TWO FOUR PT THREE (CSSE)

BT

CLASSIFICATION # N03500 #

**PASSAGE OF RESPONSIBILITY FOR CONTROL AND THE OVERALL
COORDINATION OF SUPPORTING FIRES TO CLF.**

**1. AS OF (DTG) CLF ASSUMES RESPONSIBILITY FOR THE CONTROL OF
NGF AND OAS AND OVERALL COORDINATION OF SUPPORTING FIRES.**

BT

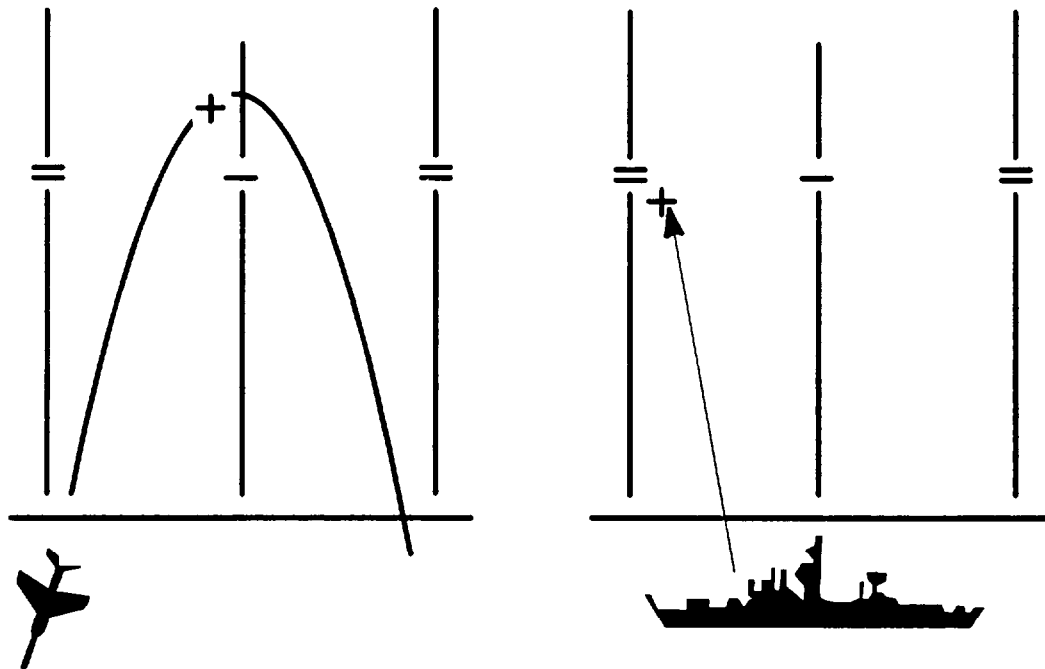
Figure 8-12. Notification of Passage of Control and Overall Coordination of Supporting Arms

involving the SACC. When possible, they coordinate laterally when either attacking targets in an adjacent unit's zone or when attacking targets in their own zones which require rounds or aircraft to travel through an adjacent unit's airspace. The SACC be-

comes involved only when the FSACs ashore are unable to clear requests or to coordinate two or more supporting arms. Figures 8-13 through 8-15 illustrate actions required in typical situations when FFCC/FSACs have not been established ashore.

Description:

1. Assault is in early stages.
2. No battalion FSCC established.
3. A unit ashore requests CAS or NGF.
4. Aircraft and rounds will travel only through airspace of the requesting unit.



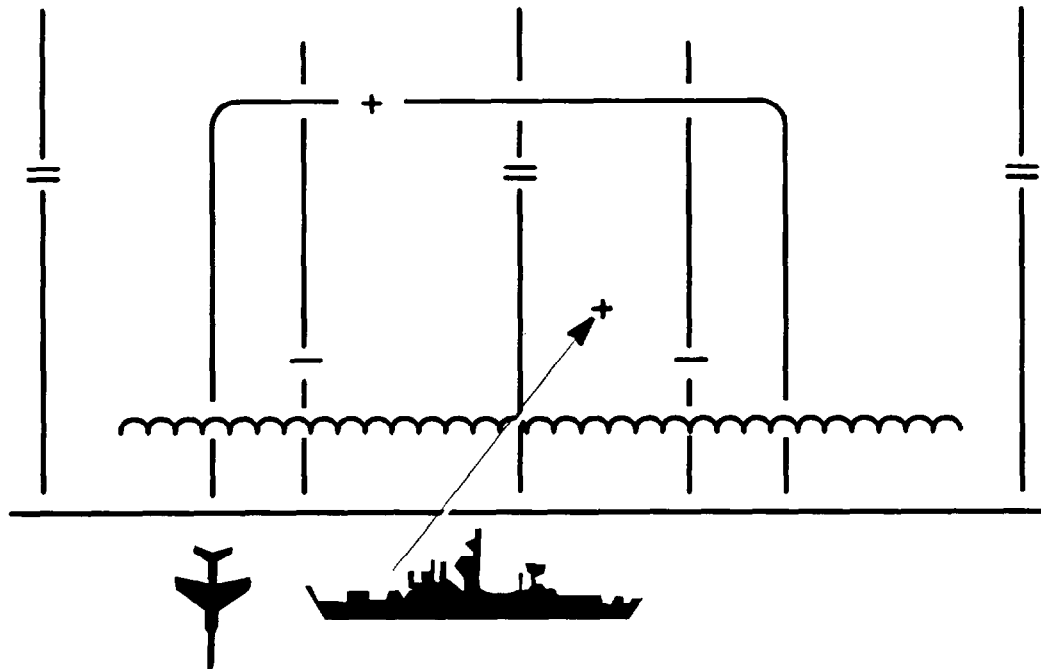
Required:

1. Desired route of CAS aircraft included in JTAR.
2. Navy TACC informs SACC of request for CAS and route of aircraft.
3. SACC checks route of aircraft against NGF trajectories, checks enemy air defense locations, requests SEAD if required, and informs requesting unit. Primary responsibility for coordination rests with elements ashore.
4. SAC and LF representatives approve use of CAS and so inform NavyTACC .

Figure 8-13. Fire Support Coordination (Situation 1)

Description:

- 1. No battalion FSCC established ashore.**
- 2. Units ashore request NGF or CAS.**
- 3. Aircraft or NGF rounds will cross adjacent battalions airspace or impact in adjacent battalions area.**



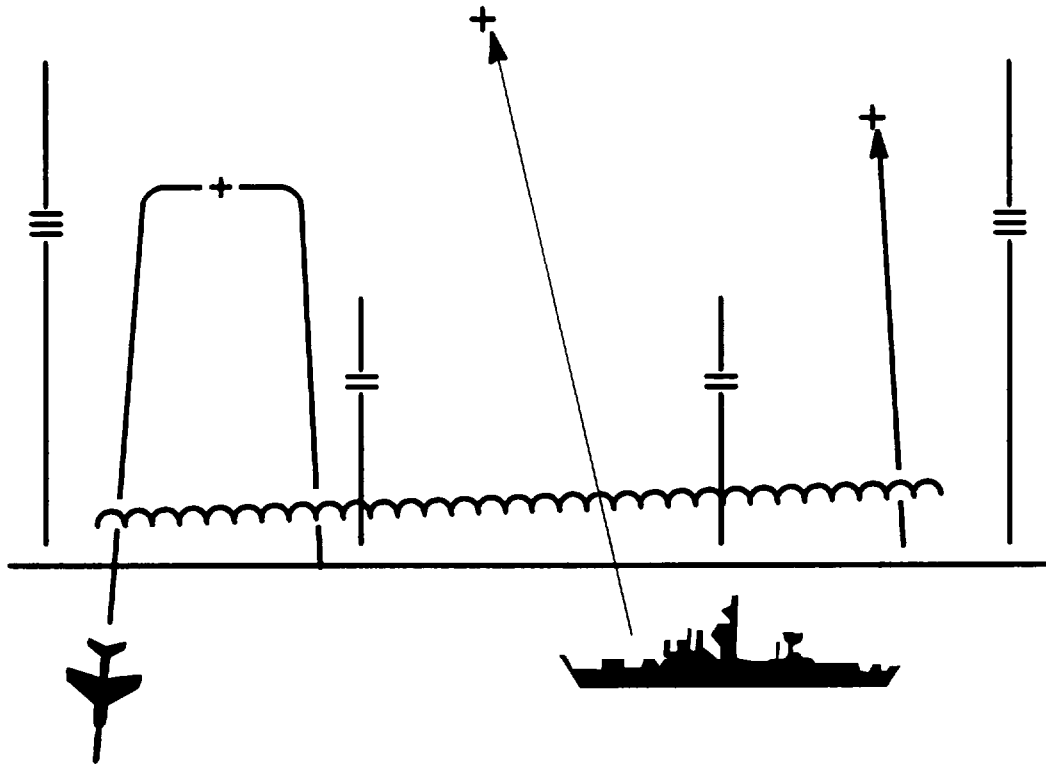
Required:

- 1. Companies coordinate missions internally.**
- 2. Desired route of aircraft included in JTAR.**
- 3. Navy TACC informs SACC of request for CAS and route of aircraft.**
- 4. SACC checks route of aircraft against NGF trajectories, checks for enemy air defense locations, requests SEAD if required, and informs requesting unit. Primary responsibility for coordination rests with elements ashore.**

Figure 8-14. Fire Support Coordination (Situation 2)

Description:

1. Battalion FSCCs established ashore.
2. Regimental FSCC not established.
3. Target is outside of any battalion's zone of action but within the regiment's zone.



Required:

1. FO, FAC, or SFCP requests fire, FAC will include the desired route of aircraft in JTAR.
2. Battalion FSCC withholds clearance.
3. Battalion FSCC requests clearance from SACC.
4. SACC checks on units operating in the area and grants or denies clearance (performed by LF FFC).
5. Battalion FSCC clears mission or directs termination.
6. TAREP submitted to SACC at end of mission.

Figure 8-15. Fire Support Coordination (Situation 3)

PART IV

Appendixes

Appendix A — Pre-D-Day, D-Day, and Post-D-Day Checklists

Appendix B — Format for the Air Operations Annex

Appendix C — Selection of Weapons and Ammunition

Appendix D — Target Numbering System

Appendix E — Instructions for Use of Joint Tactical Air Strike Request Form

Appendix F — Computation of Naval Gunfire Support Ship Requirements

Appendix G — Naval Gunfire Support Planning Documents

Appendix H — Format for Naval Gunfire Annex

Appendix I — Supporting Arms Coordination During Amphibious Assault

APPENDIX A

Pre-D-Day, D-Day, and Post-D-Day Checklists

A.1 PRE-D-DAY CHECKLIST

1. Is the decision to conduct a pre-D-day bombardment considered valid from the standpoint of surprise and the necessity for destruction?
2. Will the pre-D-day bombardment disclose the selected landing area? Landing beaches?
3. Does it provide for the destruction of all fortified installations that can seriously interfere with the approach of ships and aircraft, operations of SEAL and reconnaissance units, and attack group operations on D-day?
4. Have the NGF requirements been coordinated with those for air?
5. Is the priority for targets consistent with the tactical plan?
6. Are adequate ammunition, time, and number of ships provided for the destruction of vital targets? Is time provided for destruction of additional targets that may be discovered?
7. Are targets assigned to NGF for destruction visible from seaward and susceptible to short-range attack?
8. Will the destruction of any targets tend to hinder future operations ashore? Has provision been made to prevent destruction of such targets as civilian communities, hospitals, bridges, dams, and tank farms.
9. Will preliminary bombardment assist demonstration operations (if scheduled)?
10. In addition to destructive fire, has provision been made to isolate the landing area; disrupt

defender's communications, his reserve, and logistical areas; and harass and demoralize defending forces?

11. Are there adequate spotting aircraft available?
12. Do requirements provide for collection, evaluation, and early dissemination of intelligence and target information? Have estimates made early in the planning stages been replaced with the latest intelligence? Has provision been made to send a detachment of the FFCC (landing force naval gunfire officer, landing force air commander, and part of the target information section) with the advance force?
13. Is reserve ammunition adequate for defense against air and/or naval attacks?

A.2 D-DAY CHECKLISTS

1. Have requirements been closely coordinated with those for air operations?
2. Has an alternate plan been provided?
3. Have provisions been made to offset the effects of bad weather and low visibility?
4. Have priorities been allocated to provide vitally important fire in the event of withdrawal of a portion of the fire support ships?

A.2.1 Pre-H-Hour Destructive Fire

1. Has sufficient time been allowed for last minute destruction of vital installations uncovered by the preliminary bombardment?

2. If no pre-D-day bombardment is conducted, has time been allowed for the destruction of fortifications that can seriously oppose the landing?

A.2.2 Prearranged Close Support

1. Does the selection of targets or areas for neutralization prior to H-hour provide for coverage of both known and suspected short-range direct and indirect fire weapons that can bear on the ship-to-shore movement, landing, deployment, and advance of the LF to the initial attack group objectives? After H-hour?
2. Does the timing of close support fire prior to H-hour provide for continued neutralization or suppression during the ship-to-shore movement?
3. Does the timing of fire in relation to H-hour provide for continued neutralization after H-hour based on a realistic rate of advance and adequate safety factors for overhead and flanking fire?
4. Is the duration of the prearranged close support sufficiently long after H-hour to assure that the SFCs are established with the assault battalion ashore and prepared to call for and adjust fire on close support targets?
5. Does the recommended density of neutralization to be delivered on preplanned targets prior to and after H-hour appear satisfactory, based on expected resistance?
6. Is there any provision for rapid modification of prearranged close support?

A.2.3 Close Support

1. Is the recommended assignment of direct support ships to assault and reserve battalions adequate?
2. Are the required supplementary spotting agencies provided for assault battalions?
3. Are frequencies provided for shore fire control nets for all assault and reserve battalions? Spotting aircraft?

A.2.4 Prearranged Deep Support

1. Does the selection of prearranged deep support targets provide for neutralization of known and suspected long-range direct and indirect fire weapons that can bear on the (1) ship-to-shore movement, (2) landing, (3) deployment, and (4)

advance of the LF to the initial objective? Does the selection of targets provide for neutralization of known and suspected reserves (both infantry and armored) as well as command and observation posts?

2. Does the timing of fire on the foregoing deep support targets prior to and after H-hour provide for their neutralization within an adequate period of time?
3. Does the recommended density of neutralization fire appear adequate?

A.2.5 Deep Support on Targets of Opportunity

1. Is the terrain coverage (including observation) by deep support ships adequate to ensure proper surveillance for enemy weapons, reserves, and other targets of opportunity? Does the assignment of zones take into account the natural channels of mechanized movement?
2. Is the recommended assignment of general support ships to echelons of the LF adequate?
3. Is there adequate provision for massing the fire of general and direct support ships on an armored attack?
4. Are sufficient frequencies provided to ensure force fire control nets for each general support ship?
5. Are zones of fire visible from seaward? Easily discernible from air? Within range of ship assigned? Coincident with zone of action of supported unit?
6. Do zones contain too many targets for assigned ship?
7. Do zones cover logical avenues of mechanized approach?

A.2.6 Miscellaneous

1. Has adequate support been provided to make the demonstration (if scheduled) realistic?
2. Have direct support ships been assigned to battalions making the demonstration landing?
3. Have plans been made for support of subsidiary landings, amphibious reconnaissance, patrols, and so forth?

A.3 POST-D-DAY CHECKLIST

1. Does the estimated duration of gunfire support after D-day agree with the tactical estimate?
2. Have these requirements been compared to available artillery and air operations?
3. Have sufficient ships been provided to furnish direct or general support to all units operating within range of naval guns?
4. Has air spot been requested for ships without organic aircraft where required?
5. Has provision been made for continuing harassment of hostile rear areas? Prevention of evacuation and/or counterlandings?
6. Have ships been provided to support patrol operations?
7. Has provision been made for massing of ship's fire by the landing force?
8. Has the possible withdrawal of fire support ships been considered?

APPENDIX B

Format for the CATF's Air Operations Annex

B.1 FORMAT

The format of the air operation plan conforms to that of an operation plan, including a complete task organization for the air and air control units involved in the operation. The air operation plan is an annex to the operation plan of the CATF. NWP 11, Naval Operational Planning, is the basic guide to format.

B.1.1 Appendixes and Tabs. Necessary amplifying instructions and details of the air operation plan are included as appendixes and tabs. This list of appendixes and the information they contain is provided as a guide.

B.1.1.1 The Aircraft Schedule. This schedule will include:

1. Pre-D-Day
2. D-Day
3. Post-D-Day
4. General and specific instructions relating to the aircraft schedules included therein.

B.1.1.2 Armament Loading. It will include an armament loading code, that is used to indicate by code words the composite ordnance load carried by an aircraft. The armament loading appendix will also include all general and special instructions for armament loading and fuze setting.

B.1.1.3 Air Spot Procedure. This includes:

1. General instructions for spotting NGF and artillery by aircraft
2. Special instructions for aircraft by type.

B.1.1.4 Approach Procedures and Air Operation Charts. These charts include:

1. An air operation chart of the objective area, including all geographic reference points, boundaries, routes, and stations of which pilots should be cognizant when operating within the objective area.
2. General and special instructions for use of schematic information shown on the air operation chart, including approach to, operation within, and retirement from the objective area by all aircraft on every type mission and under all conditions of weather.

B.1.1.5 Aircraft Tactical Search. This includes the type searches and the areas to be searched.

B.1.1.6 Air Support Communication Plan. This appendix is based upon all effective communication publications and upon the specific communication requirements between aircraft and all agencies concerned with their control and use during the amphibious operation. It will include:

1. Frequency and net designations
2. Frequency and net assignments shown by charts on phases of the operation, types of missions, participation of elements, and zones of responsibility
3. Instructions and references for the use of all required radio codes
4. Complete list of all unit calls
5. Emergency use of radio nets.

B.1.1.7 Supporting Arms Coordination includes:

1. Responsibility for coordination of supporting arms
2. Coordination agencies: SACC and FFCC

3. Airspace coordination areas for NGF and artillery.

B.1.1.8 Required Reports. These reports include:

1. Aircraft availability reports —

- a. A daily report of the number of aircraft available for tactical air missions to be conducted the following day is necessary to facilitate compliance with the requests for those aircraft.
- b. Beginning on the first day that tactical air operations are controlled in the objective area, air units supporting the operation submit, via the tactical air command net not later than 1400 each day, an estimated availability for the following day as set forth in paragraph (c) below. The report is addressed to the ATF Navy TACC. It is intended that this report be on a sustained availability basis rather than a maximum effort availability.
- c. The report will be identified by the phrase "AC AVAIL," and will consist of information as follows:

ALFA The number of day and night VF aircraft that can be maintained continuously on station the next day.

BRAVO The number of VA aircraft that can be maintained continuously on station the next day.

CHARLIE The number of spotting aircraft that can be maintained continuously on station the next day.

DELTA The total number of aircraft not covered above that will be available for special air missions.

ECHO Any deviation from the armament loadings assigned in the schedules.

2. Helicopter availability report —

- a. A daily report of the number of helicopters that will be available for missions to be con-

ducted the following day is necessary to facilitate efficient planning.

- b. Beginning the day prior to scheduled helicopter operations, all helicopter units will submit, via the tactical air command net, an estimate of the number of helicopters that will be available for the following day's operation. This report will be submitted daily at 1400 to the Navy TACC in the format shown in paragraph (c) below. It is intended that the report be based on a sustained availability rate rather than on a maximum effort availability.
- c. The report will be identified by the phrase HELO AVAIL, and will contain the following:

ALFA Number and type of helicopters available for the following day's operation.

BRAVO Miscellaneous information to include helicopter or pilot restrictions for special missions.

3. Daily summary of helicopter operation report —

- a. Beginning on the first day that transport type helicopters are controlled in the objective area, the officer-in-charge of the HDC submits to the Navy TACC/TADC, via the tactical air command net not later than 1900 each day, the data contained in paragraph (b) below.
- b. This report will be identified by the phrase "HELO OPSUM," and will contain information on operations as follows:

ALFA Number of supply sorties.

BRAVO Number of transport sorties.

CHARLIE Number of search and rescue sorties.

DELTA Number of evacuation sorties.

ECHO Number of administrative sorties.

FOXTROT Number of training sorties.

GOLF Total tons of equipment and supplies put ashore.

HOTEL Number of troops put ashore.

INDIA Number of troops moved point-to-point ashore.

JULIETT Total tons of equipment moved point-to-point ashore.

4. Operations report (TACRON daily summary) —

- a. A TACRON daily summary is compiled by each TACRON and includes all reports from subordinate units. This single report is transmitted to the TAO, not later than 2100 each day, using the tactical air administrative net.
- b. The report will be identified by the phrase "AC OPSUM," and will consist of information on operations as follows:

ALFA Date of report.

BRAVO Number of missions by carrier air-strike groups.

CHARLIE Number of missions by land-based air-strike groups.

DELTA Number of carrier-based aircraft used in air strikes in the following order: VF, VA.

ECHO Number of land-based aircraft used in air strikes.

GOLF Number of sorties by smoke-laying aircraft.

HOTEL Number of sorties by reconnaissance planes.

INDIA Number of psychological warfare sorties.

JULIETT Number of sorties by supply-drop planes.

KILO Total tons of bombs dropped by all air support planes.

LIMA Total number of aircraft rockets and missiles (air-to-air and air-to-surface) fired by all air support planes.

MIKE Total number of napalm tanks dropped by all air support planes.

NOVEMBER Total number of mission requests received.

OSCAR Number of requested missions flown.

PAPA Number of helicopter supply sorties.

QUEBEC Number of helicopter transport sorties.

ROMEO Number of helicopter search and rescue sorties.

SIERRA Number of helicopter evacuation sorties.

TANGO Number of helicopter administrative sorties.

UNIFORM Number of helicopter training sorties.

VICTOR Total tons of equipment and supplies put ashore by helicopter.

WHISKEY Number of troops put ashore by helicopter.

XRAY Number of troops moved point-to-point ashore by helicopter.

YANKEE Total tons of equipment moved point-to-point ashore by helicopter.

For purposes of this report, a mission is defined as a coordinated strike, using ordnance, by one or more aircraft against an enemy position. Observation or reconnaissance requests are not counted as missions. A sortie is defined as one plane reporting on station.

B.1.1.9 The Antisubmarine and Anti-Small-Boat Appendix. This appendix will provide detailed assignment of missions of the task forces involved, and

contain detailed provisions for the task elements involved. The provisions will include:

1. Charts showing:
 - a. Boundaries and areas of responsibility
 - b. Radar reference points
 - c. Sectors to be flown, with a schematic layout in relation to terrain features
 - d. Description of sectors by leg numbers and distance to be covered.
2. Instructions and information covering:
 - a. Concept of the plan
 - b. Types of aircraft to be employed
 - c. Operating conditions required or desired covering airspeed, accuracy of track, promptness and accuracy of position reports, use of radar, sonobuoys, special mines, flares, dye markers, IFF, and so forth
 - d. Restrictions of ASW aircraft
 - e. System of reporting
 - f. Special and precautionary instructions
 - g. Contact and amplifying reports and procedure for their disposition
 - h. Coordination of hunter-killer operations
 - i. Armament loading and instructions.

B.1.1.10 The Photographic Plan. This plan includes:

1. Responsibility for ordering photographic missions throughout the amphibious operation
2. Agencies furnishing photographic aircraft
3. Method of requesting photographic coverage
4. Procedure for processing and delivering photographic films, negatives, and prints.

B.1.1.11 Antiair Warfare. This appendix is described in paragraph B.2.

B.1.1.12 Employment of Land-Based Air Units. This appendix includes instructions to land-based air units assigned to support the operation. It is an addition to the other applicable appendixes. Provisions and instructions for units to be deployed to captured or newly constructed forward base airfields are included.

B.1.1.13 Miscellaneous Air Operations. Instructions for operations such as psychological warfare, evacuation, spraying, smoke, transport, and other air operations not covered in other appendixes are contained in miscellaneous air operations.

B.1.1.14 The Helicopter Ship-to-Shore Plan. This plan is an appendix to the ship-to-shore movement annex. It provides a task organization, general situation summary, special instructions, and assignment of missions for each unit involved. The following provisions will be included in this appendix:

1. Aircraft schedules, including wave assignments
2. Traffic instructions and charts showing approach and retirement lanes as well as orbit and control points
3. Communications
4. Command relationships, movement and control plan
5. Escort and cover plan
6. Coordination with antiaircraft fire, NGF, artillery, and mortar fire
7. Loading plan
8. Subsequent movement plan
9. Evacuation and resupply plan
10. Cancellation and postponement plan
11. Reports required.

B.1.1.15 General Instructions and Safety Precautions. These include:

1. Designated areas for expenditure of unused ordnance
2. Safety procedures for dumping fuel and ordnance
3. Communication failure instructions

4. Other instructions as appropriate.

B.1.1.16 Search and Rescue. This includes:

1. A SAR chart showing boundaries and zones of responsibility and standard reference points
2. Instructions and information pertaining to:
 - a. Responsibility en route to the objective area
 - b. Responsibility at the objective area
 - c. Coordination of rescue agencies
 - d. Rescue facilities available
 - e. Method of reporting distress, crashes, survivors, and so forth
 - f. Distress or emergency nets to be used.

B.2 THE ANTI-AIR WARFARE APPENDIX

The TAO, in his capacity as air officer for the CATF, is usually responsible for AAW planning, assisted by ATF CIC officer and the CO/OIC of the TACRON unit assigned. Although indicated above as an appendix within the air operations annex, with increasing numbers of SAMs, the coordination requirements generated, and increased complexity of AAW control, a separate AAW annex will be considered. The planning group, when utilizing SAMs in the AAW plan, will be augmented by an officer familiar with the problems inherent to their employment.

B.2.1 Contents. The AAW appendix includes a task organization (that is, appropriate portions of the basic task organization) and specific tasks for each unit thereof. The provisions of NWP 32 apply. It is particularly necessary that specific tasks be assigned to each unit in the objective area having an AAW capability, since the particular vulnerability to air attack in the area and the large variety of units newly assembled there prevent detailing of assignments during an air attack. The AAW appendix will outline in general terms the relationship of the AAW organization in the objective area as a whole to the AAW organization of other forces adjacent to the area. The following specific provisions will be included:

1. Zones of responsibility for the various forces en route to and within the objective area
2. Command relationships in AAW

3. Forces providing aircraft for anti-air warfare
4. Procedures for passing control ashore
5. Use of close support aircraft in anti-air warfare
6. Use of anti-air warfare aircraft in close support
7. Integration of LF early warning units into the AAW system as early as practicable
8. Responsibility and procedure for setting air warning colors and gun control orders.

B.2.2 Tabs to Anti-air Warfare Appendix. The subjects to be covered in the tabs to the AAW appendix will vary according to the size and nature of the operation. The following may be used as a guide.

B.2.2.1 Air Control

1. A plan for detection and interception of enemy aircraft. This will contain provisions for combat air patrols, including separate combat air patrols such as:
 - a. RAPCAP
 - b. BARCAP
 - c. TARCAP.
2. Control of combat air patrols:
 - a. Agencies controlling, afloat and ashore
 - b. Stationing of combat air patrol (CAP)
 - c. Reporting and relieving procedure
 - d. Low-visibility control
 - e. Visual control
 - f. Speed restrictions.
3. Use of IFF/SIF
4. Homing devices and direction finding
5. A summary of the AAW aircraft that will be provided.

B.2.2.2 Antiaircraft Coordination

1. Formations

2. Formations sectors
3. Fire control radar search
4. Firing limitations
5. Communications
6. Conditions of readiness of batteries
7. The prescribed air warning conditions and gun control orders
8. Lookouts.

B.2.2.3 Friendly and Enemy Aircraft Characteristics

1. Friendly aircraft, including types of friendly aircraft that will be operating in the objective area
2. Enemy aircraft, including a list of the types of enemy aircraft likely to be encountered with a

description of probable speeds and modes of attack.

B.2.2.4 Combat Information Center

1. Radar guard assignment plan
2. Instructions for making contact reports
3. Any variations in normal usage of the CIC air control net
4. Instructions for use of IFF/SIF
5. Instructions for radar pickets
6. Airborne ASW operations and small boat patrols
7. ECM, both passive and active, including restrictions on their use.

APPENDIX C

Selection of Weapons and Ammunition

C.1 NAVAL GUNFIRE EMPLOYMENT CONSIDERATIONS

Detailed information on the selection of weapons and ammunitions is presented in appropriate JMEMs. The peculiar characteristics of naval gun systems and ships must be understood for effective employment as a supporting arm.

C.1.1 Characteristics of Naval Gun Systems. Naval guns and associated fire control systems have various characteristics that may be advantages or disadvantages to their employment in NGFS.

C.1.1.1 Ammunition Variety. Gun calibers currently available include 5-inch (127 mm). Different types of 5-inch (127 mm) projectiles, fuzes, and charges permit selection of the optimum combination. The Naval Reserve has 8-inch (203 mm) capability as well.

C.1.1.2 High Rate of Fire. Mechanized ammunition handling and loading features permit relatively high rates of fire. The large volume of fire that can be delivered in a relatively short period of time is a distinct advantage when delivering neutralization fires.

C.1.1.3 Fire Control Equipment. Highly automated and accurate fire control systems allow ships to fire while underway or at anchor. Optical and electronic equipment makes observation of targets possible under favorable conditions, permitting direct fire control solutions. New systems being introduced to the fleet provide the advantage of firing more than one mission at a time.

C.1.1.4 High Initial Velocity. The high initial velocity characteristics of naval guns make them suitable for penetrating material targets, particularly those presenting vertical faces.

C.1.1.5 Flat Trajectory. The relatively flat trajectory of the naval projectile increases accuracy and effectiveness in the attack on targets presenting a face vertical to the gun-target line. Flat trajectory is unsuitable for the attack of targets in defilade positions. The disadvantages

of intervening terrain and targets in defilade may be overcome by using reduced charges or increasing the range to the target to increase the angle of fall.

C.1.1.6 Dispersion Pattern. The normal dispersion pattern is narrow in deflection and long in range. Because of this characteristic, close supporting fire can best be delivered when firing is parallel to the front lines. The pattern also permits effective coverage of targets such as roads and runways when the gun-target line is parallel to the long axis of the target.

C.1.1.7 Gun Wear. Normal gun bore erosion, calculated in terms of ESR, reduces initial velocity, terminal accuracy, and maximum range. Significant variation from published gun specifications must be made known to controlling agencies.

C.1.2 Characteristics Affecting Ship Employment. The unique characteristics of NGFS ships as supporting arms platforms provide inherent advantages and disadvantages for operational employment.

C.1.2.1 Mobility. Fire support ships can maneuver rapidly within or between fire support areas, to avoid counterbattery fires, to evade enemy attack, or to mass fires. This ability to maneuver allows the selection of the most favorable gun-target line and is an important factor when planning for the support of widely separated beaches. When ships fire while underway, the gun-target line continually changes. Missions may be interrupted or delayed as gun-target line changes relative to friendly front line, intervening terrain, or restricted firing areas. This situation may be partially offset by restricting the movement of the ship.

C.1.2.2 Fixing Ship's Position. The accuracy of NGF depends upon the accuracy with which the position of the firing ship has been fixed. Visual and electronic navigation procedures accurately fix the ship's position; however, any error or adverse condition affecting initial fixes and navigational tracks result in inaccurate unobserved fires and in the initial salvo of observed indirect fires. The use of radar

beacons or reference points indentifiable by both the ship and spotter will reduce this problem.

C.1.2.3 Ammunition Capacity. The amount of ammunition available for NGFS is limited by the fixed magazine capacity and the ship's requirement to maintain reserve of ammunition for self-protection. This disadvantage is partially offset through underway replenishment in the objective area.

C.1.2.4 Hydrography. The draft and vulnerability of NGFS ship sonar installations restrict operations near shoal water, reefs, and poorly charted areas. The mine warfare threat and the requirement for adequate maneuvering room also dictate restrictions of the designing of fire support areas. Unfavorable hydrographic conditions and the mine warfare threat may force the firing ship to take an undesirable position with respect to the target area.

C.1.2.5 Weather. Various weather conditions adversely affect communications, navigation, and observation of targets. Reduced visibility restricts mobility and denies effective use of direct fire and call fire support. Extreme conditions may affect the performance of certain types of ammunition.

C.1.2.6 Communications. The major disadvantage of employing those NGFS ships is that all communications with shore agencies or air spotters must be conducted by radio or visual means, neither of which is as reliable as wire or telephone. This single means of communications is susceptible to interruption by equipment limitations, enemy electronic warfare, and unfavorable atmospheric conditions. Communications may be further degraded by the constantly moving of ships and shore fire control parties. Alert watches, alternate frequencies, backup equipment, and high states of readiness and training offset much of this disadvantage. Maximum use of codes, authentication, and secure communication equipment is necessary to avoid disclosure or compromise of classified information.

C.2 SELECTION OF AMMUNITION

The proper selection of weapons by caliber and type of ammunition is of the utmost importance in employing the naval gun to its maximum capability in support of LFs. Correct selection ensures that the desired results will be achieved with a minimum expenditure of ammunition. The factors forming the basis for the selection of weapons and ammunition for shore bombardment are discussed in the following paragraphs.

C.2.1 Nature of Target. To determine the proper type of projectile, fuze, and necessary ammunition expenditure, the nature of the target must be considered carefully. This study is made from target intelligence and/or at the time of initial target acquisition. It should include information relative to the target's construction, composition, degree of protection afforded, thickness of walls, vertical and horizontal face presented, size (height, width, depth), and mobility (or lack of it).

C.2.2 Terminal Effect Sought. The selection of the ammunition to be used against a target is also determined by the results desired. The desired effect (such as destruction, neutralization, harassing, and interdiction) will influence the choice of projectile and fuze combination. Specific effects (such as blast/fragmentation, penetration, incendiary, screening, illumination) desired must also be considered.

C.2.3 Terrain. Frequently, terrain between the gun and the target must be studied and compared to trajectory charts. Defilade targets may require the use of reduced charge or extended range to obtain the necessary trajectory or airburst action. Projectile and fuze selection should consider the terrain around the target. Ground hardness, vegetation, or contour may indicate the proper choice or may preclude the selection of certain projectiles and/or fuze actions.

C.2.4 Range. Hydrographic conditions and target location determine the range at which firing will be conducted.

C.2.5 Ammunition Available. The caliber and type of ammunition available must be considered in order that any ammunition in short supply may be conserved.

C.2.6 Location of Target Relative to Friendly Forces. The effects of the gun-target line relative to front lines also must be considered in determining danger from near misses or fragmentation.

C.2.7 Target Priority. In the initial stage of an amphibious operation, target priority will frequently affect ammunition selection. As an example, prior to mine clearance of close-in fire support areas, the resulting longer ranges may dictate the use of larger caliber weapons.

C.2.8 Ammunition Effect. Typical targets and ammunition effect factors are:

C.2.8.1 Area Targets. When the area of the target is too large to be covered completely by a single battery firing a full salvo, either additional batteries must be

assigned to assist or the battery must cover the area by spacing successive salvos within the area. The assignment of additional batteries on an area increases the density and surprise effect of the fire, while the spacing of successive salvos will simplify the control of execution.

C.2.8.2 Tanks and Combat Vehicles. Naval gunfire is not effective for the destruction of tanks. Neutralization fire should be conducted to disrupt the tanks, create confusion, perhaps damage the tracks, antennas or fire control systems and to engage supporting infantry. WP may be used for incendiary effect if combustible material can be ignited in the area.

C.2.8.3 Engagement Limitations. The following targets may be effectively engaged by greater than 5-inch naval gunfire support.

1. Heavy weapons emplaced in pillboxes and bunkers
2. In-cave shelters
3. Heavily constructed buildings
4. Bridges constructed of concrete, stone, brick, or steel
5. Concrete pillboxes, concrete bunkers, and armored turrets
6. Bunkers
7. Landing runways and roads.

C.2.8.4 Vehicles (Trucks, Prime Movers, and Personnel Carriers). Vehicles should be fired upon as an area target for neutralization, utilizing HE projectiles. WP projectiles with PD fuze may be used for incendiary effect.

C.2.8.5 Personnel

C.2.8.5.1 In the Open. HE projectiles of all calibers, 5-inch and above, fitted with CVT, time, or PD fuzes are effective. WP is effective, but will tend to conceal enemy movement.

C.2.8.5.2 In Trenches or Foxholes. Personnel in trenches or foxholes usually are dispersed and protected against fragments unless the fragments are descending nearly vertically. HE projectiles of 5-inch or larger caliber with CVT or mechanical time fuze are most effective. WP may be used with the same consideration as above.

C.2.8.5.3 With Light Overhead Cover. Impact bursts will crush and destroy the light cover and inflict casualties by fragmentation as well.

C.2.8.6 Light Construction, Frame Building, and Oil Tanks. HE projectiles fitted with PD fuzes are effective against this type of target. WP is also effective against frame buildings and oil tanks previously ruptured. Nose plugs may be used on HE projectiles if the projectile will not pass completely through the target before detonation by base-detonating fuze.

C.2.8.7 Wooden and Pontoon Bridges. HE projectiles fitted with PD fuzes are effective against this type of bridge. WP may be used for incendiary effect.

C.3 RANGE CONSIDERATIONS

Throughout the planning stage, the NGFS planner must consider the range of the target from the firing ship. This is one of the most important factors involved in the ammunition requirements for destruction. The firing range of various classes of ships will initially depend upon hydrography and the enemy defense system (that is, mine defenses, shore batteries, and so forth). Short ranges are usually most effective.

C.4 ACCURACY AND EFFECTIVENESS DATA

Accuracy and effectiveness data for naval gun systems are found in the following OPs:

5"/54 Gun	OP4224
5"/38 Gun effectiveness	OP4092
8"/55 Gun effectiveness	OP4585
Weapons/Ammo Characteristics	OP4080
Safe Distances	OP4138
Lethal Areas	OP4136
Fragmentation Data	OP4215
Ammo Reliability	OP4237
Indirect Fire Accuracy	
Vol. I	OP4388
Indirect Fire Accuracy	
Vol. II	OP4388

C.5 GENERAL PLANNING FACTORS

Although precise data for ammunition and fuze effects are in the JMEMS series, which are classified, the following general rules are useful in ammunition planning:

1. Proximity fuzes are more effective than PD fuzes against troops in the open.
2. PD fuzes are more effective than proximity fuzes for destruction of targets and against targets in forest. (Fuze delay)
3. Six rounds of 5-inches will probably produce fewer than 10 percent casualties against standing troops. (Company of troop)
4. 1.2 times as many rounds will be needed against prone troops as compared to standing troops.
5. Six times as many rounds will be needed against troops dug in, compared to standing troops.
6. High (marsh) grass will reduce weapons effects by about 30 percent.

APPENDIX D

Target Numbering System

D.1 TARGET DESIGNATION

A target numbering system provides a common reference, avoids duplication in the allocation of numbers, and shows the originator of the target. It is a responsibility of the senior commander to allocate blocks of target numbers to subordinate units. In amphibious operations, the CATF establishes the target numbering system. For combined operations, the target numbering system must facilitate the exchange of targets between nations. The target numbering system used in NATO and ABCA operations is governed by standardization agreements. See AArty P-1 and QSTAG 221, respectively. These agreements use a target numbering system comprised of two letters and four numbers (e.g., AB1234). Each nation establishes a target numbering system, based on the agreements, with the first letter used for national identification. The system outlined in the standardization agreements may also be used as a basis for establishing target numbers in operations not involving NATO/ABCA armies, e.g., other countries may be identified by a first letter.

D.2 MARINE CORPS TARGET NUMBERING SYSTEM

D.2.1 Description. In Navy/Marine Corps amphibious operations, the Marine Corps target numbering system will be used unless otherwise directed. This system incorporates the standardization agreements discussed above. The Marine Corps target numbering system is designed to provide the maximum flexibility using the remaining letter (2nd letter) and target number blocks (four numbers). Its intent is to eliminate the need to revise the target number system during mobilization or when working with non-USMC units. Additionally, the system provides the maximum target number availability for allocation to units to minimize the frequency for reuse of numbers. If a MAGTF is augmented by additional infantry battalions or even regiments, the target numbers available become larger as these units bring additional target numbers with them. When Marine units are deployed as a part of a joint or combined

task force, the senior headquarters has the responsibility to establish the target numbering system to be used since several variations of target number systems may exist. The Marine Corps target numbering system is described below.

D.2.2 Target Number. The target number consists of six characters, comprised of two letters and four numerals (e.g., AB1234). The two letter group denotes the originator of the target and/or the level holding the target data. The letters I and O are not used.

D.2.2.1 First Letter. The first letter of the two letter group will be for national identification at the corps or MAGTF level. The national identifying letters for NATO and ABCA armies are contained in Figure D-1. The first letter will be assigned and published by the MAGTF, or the headquarters senior to the MAGTF when the MAGTF is assigned as a subordinate command in joint or combined operations.

D.2.2.2 Second Letter. The second letter will designate units within the MAGTF. Marine units are assigned the letters contained in Figure D-2.

D.2.2.3 Numbers. Numbers will be used to further designate units. Numerical assignments will be published in operation orders.

1. Numbers between 0000 and 9999 can be issued for formations and units. Numbers 8000 to 9999 may be reserved for optional use as counterbattery (counterfire), nuclear, and toxic chemical targets.
2. Infantry regiment target number blocks (0000 to 7999) will be allocated by the Regimental FSC to the following:
 - a. Regimental FSCC
 - b. Battalion FSCCs
 - c. Attached units

NATION	1ST LETTER	NATION	1ST LETTER
Belgium/ Luxembourg	- B	Norway	- N
Canada	- C, Z	Portugal	- P
Denmark	- D	Spain	- S
France	- F	Turkey	- T
Greece	- E	United Kingdom	- U,X,J
Germany	- G	United States	- A,K,Y,W
Italy	- R		
Allied Rapid Reaction Corps	- L	Australia	- V
Netherlands	- H		

Figure D-1. National Identification Letters

1st Marine Regiment A	21st Marine Regiment R*
2nd Marine Regiment B	22nd Marine Regiment S*
3rd Marine Regiment C	23rd Marine Regiment T*
4th Marine Regiment D	24th Marine Regiment U*
5th Marine Regiment E	25th Marine Regiment V*
6th Marine Regiment F	26th Marine Regiment W*
7th Marine Regiment G	27th Marine Regiment X*
8th Marine Regiment H	28th Marine Regiment Y*
9th Marine Regiment J	29th Marine Regiment Z*
10th Marine Regiment, 2nd Marine Division, MAGTF, and ATF/Naval elements K+	
11th Marine Regiment, 1st Marine Division, MAGTF, and ATF/Naval elements L+	
12th Marine Regiment, 3rd Marine Division, MAGTF, and ATF/Naval elements M+	
13th Marine Regiment, 5th Marine Division, MAGTF, and ATF/Naval elements N*+	
14th Marine Regiment, 4th Marine Division, MAGTF, and ATF/Naval elements P*+	
15th Marine Regiment, 6th Marine Division, MAGTF, and ATF/Naval elements Q*+	
* Inactive; letter may be used, with MEF approval, to provide additional numbers for USMC or non-USMC units working under the MAGTF	
+ Numerical designation as assigned to each unit/element listed by MEF	

Figure D-2. Marine Unit Lettering System

d. DS artillery unit

3. Target number blocks (0000 to 9999) will be allocated by the MEF to designate the following:

a. ATF/naval elements

b. MAGTF elements (includes HQ, ACE, CSSE, and MAGTF-level organizations such as SRI)

c. Division FSCC

d. Artillery regiment (less DS BNs)

4. Additional target numbers may be obtained by use of letters designated for inactive regiments when required. For example, the MEF may assign the letter 'R' to an element, agency, or unit for an operation.

5. Target numbers may be reused only when necessary as targets are deleted.

6. Figure D-3 illustrates the use of the Marine Corps target numbering system.

D.3 DESIGNATION OF GROUPS OF TARGETS

Groups of targets are two or more targets on which fire is desired simultaneously.

The lowest echelon that may designate a group of targets is a direct support artillery battalion FDC. The forward observer and/or officer, seeing a need for a group of targets, will request that a group be planned by his (their) FDC.

The fact that a group of targets has been formed does not preclude individual attack on targets within the group.

Designation of the group is requested from the FDC when it is determined that a group of targets is necessary. The FDC designates a group by assigning a two letter group to it and inserting a number between the letters. For example, the letters AJ are assigned to a battalion. The first group of targets is designated A1J, the second group is designated A2J, and so forth. Other nations may designate a group of targets by nickname.

A group of targets is graphically portrayed by circling the targets within the group and identifying the group with a group number (Figure D-4).

ATF/Naval Element	AK	0000 - 0999
MAGTF HQ		1000 - 1999
SRIG		2000 - 2999
DIV FSCC		3000 - 3999
ACE		4000 - 4999
CSSE		5000 - 5999
ARTY REGT FDC	AK	6000 - 6999
GS ARTY BN		7000 - 7999
GS ARTY BN	AP	1000 - 1999
LAI BN	AR	1000 - 1999
REGT FSCC	AB	0000 - 0999
BN FSCC		1000 - 1999
BN FSCC		2000 - 2999
BN FSCC		3000 - 3999
TANK FSCC (Attached)		4000 - 4999
DS ARTY BN		5000 - 5999

Figure D-3. Marine Corps Target Numbering System

Firing data should be maintained in current status for each target in all groups. These groups are on call fires.

D.4 DESIGNATION OF A SERIES OF TARGETS

A series of targets is a number of targets or groups of targets planned to support a maneuver phase.

A series of targets may be planned to support a limited attack, a final assault, or a counterattack. It should be planned to complement the ground commander's scheme of maneuver. By design, the series of targets provides intensive, prearranged fires on the objective area. It may be initiated on call, at a specific time, or when a particular event occurs. Once a series is initi-

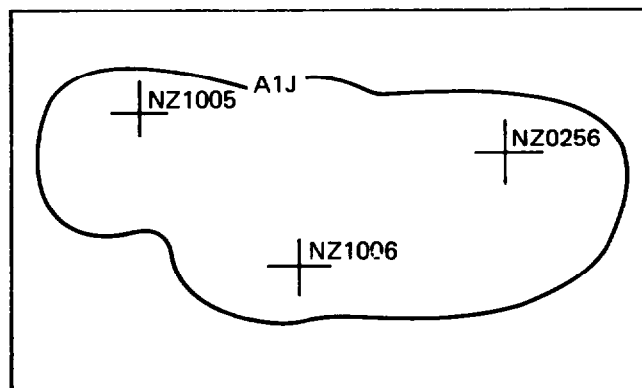


Figure D-4. Group of Targets

ated, targets and groups of targets within the series are usually fired on a predetermined time schedule.

A series of targets is graphically portrayed circling the targets or groups of targets within the series and identifying the series with a nickname (see Figure D-5). The fact that a series of targets has been formed does not preclude the individual attack of targets or groups of targets within the series.

Firing data should be maintained in current status for each target and groups within all series. These series are on call fires.

D.5 DESIGNATION OF A PROGRAM OF TARGETS

A program of targets is a number of planned targets of a similar nature. All targets in a particular program are of the same type: for example, a counterfire program planned against enemy indirect fire positions. A program of targets may be initiated on call, at a specified time, or when a particular event occurs. Once a program is initiated, targets within the program are usually fired on a predetermined time schedule listed in a fire support table. A program is usually designed by its nature; for example, counterfire, countermechanized, suppression of enemy air defenses, and given a nickname.

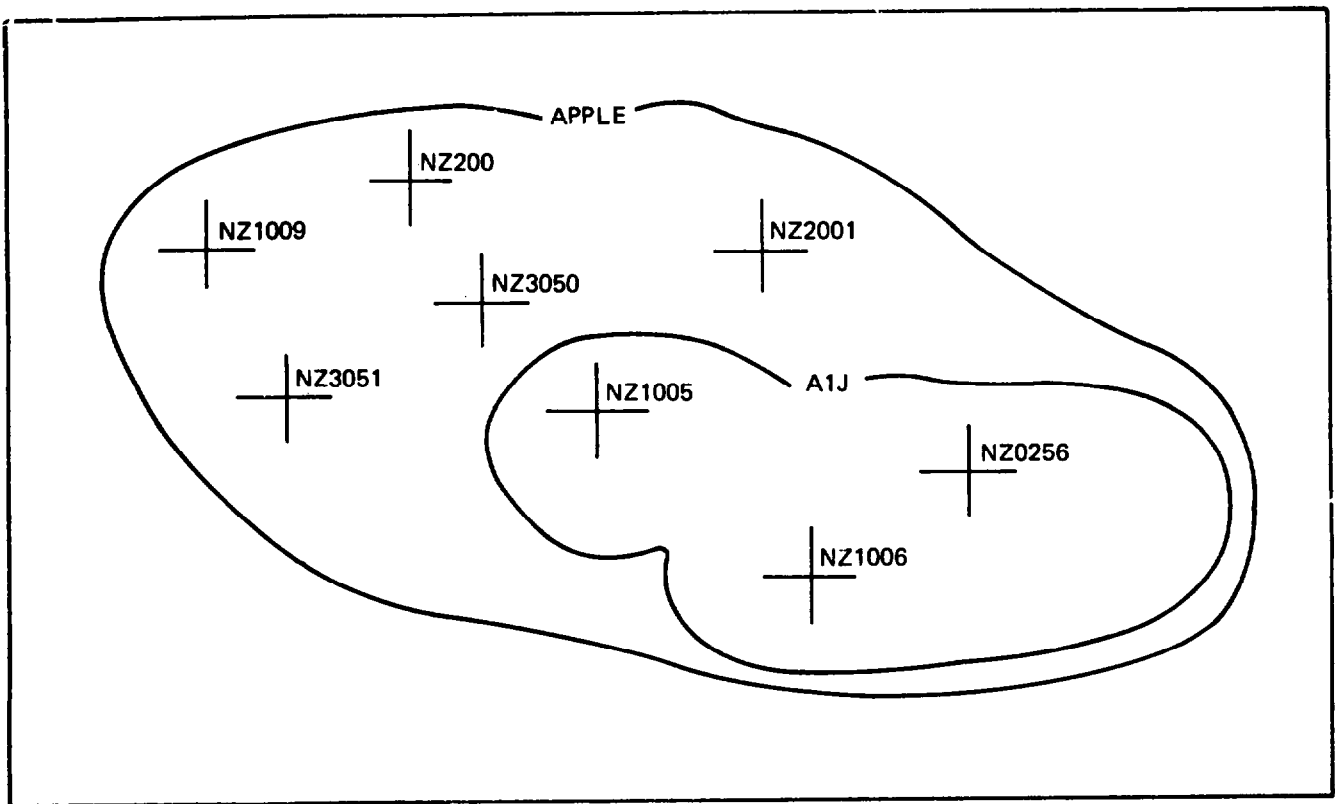


Figure D-5. Series of Targets

APPENDIX E

Instructions for Use of the Joint Tactical Air Strike Request Form

E.1 DESCRIPTION

Line	Title and Elements	Explanation
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E.1.1 Section I — Mission Request

1	UNIT CALLED	Identifies the unit designation/call sign/preassigned number.
	THIS IS	Identifies the request originator by unit designation/call sign/preassigned number.
	REQUEST NUMBER	For preplanned missions, indicates the originator's request number in series. For immediate missions, this number is assigned by the DASC.
	SENT	Indicates the time and the individual who transmitted the request.
2	(MISSION CATEGORIES)	
	PREPLANNED:	
	A. PRECEDENCE	For preplanned requests, enter precedence (block A) or priority (block B). Precedence is stated numerically in descending order of importance, as determined by the requestor. Priority is expressed as shown below.
	B. PRIORITY	
	IMMEDIATE:	
	C. PRIORITY	For immediate requests, enter priority (block C). A precedence entry is not required for immediate requests because, by definition, all immediate requests are precedence #1. Use the numerical designation below to determine priority (e.g., define the tactical situation) for preplanned (block B) or immediate (block C): 1. EMERGENCY: Targets that require immediate action and supersede all other categories of mission priority.

Line	Title and Elements	Explanation
		2. PRIORITY: Targets that require immediate action and supersede routine targets.
		3. ROUTINE: Targets of opportunity, targets that do not demand urgency in execution.
3	TARGET IS/NUMBER OF	Describes the type, approximate size, and mobility of the target to be attacked. It is necessary to specify, even if a rough estimate, the number of targets (i.e., 10 tanks) or the size of the target area (i.e., personnel on a 500 meter front). Otherwise planners cannot accurately determine what force is required — aircraft numbers/type and ordnance amount/type.
4	TARGET LOCATION IS	Locates the target by using the military grid reference system prescribed for the area concerned.
	A. COORDINATES	Locates a point target or starting point.
	B. COORDINATES	When used in conjunction with A, provides from _____ to _____ coordinates.
	C. COORDINATES	When used in conjunction with A and B, provides a route.
	D. COORDINATES	When used in conjunction with A through C, provides a route or describes a target area.
	E. TARGET ELEVATION	Target elevation in feet above sea level.
	F. SHEET NO. _____	Self-explanatory.
	G. SERIES _____	Self-explanatory.
	H. CHART NO. _____	Self-explanatory.
	CHECKED	Indicates with whom target information has been cross-checked.
5	TARGET TIME/DATE	Indicates the time/date when the airstrike is requested.
	A. ASAP	As soon as possible.
	B. NLT	The target is to be attacked before, but not later than the time indicated.
	C. AT	Indicates time at which target is to be attacked.

Line	Title and Elements	Explanation
	D. TO	Denotes end of period of time in which support such as airborne alert or column cover is required. When item D is used with item C, use of item B is unnecessary.
6	DESIRED ORD/RESULTS	Indicates the requestor's desired airstrike results. This is essential information for the planner and must be carefully considered by the requestor.
	A. ORDNANCE	Desired ordnance.
	B. DESTROY	Self-explanatory.
	C. NEUTRALIZE	Self-explanatory.
	D. HARASS/INTERDICT	Self-explanatory.
7	FINAL CONTROL	Identifies the final controller (FAC, RABFAC, FAC(A), etc.) who will conduct the briefing and control the release of ordnance.
	A. FAC/RABFAC	Transmit the type of terminal control.
	B. CALL SIGN	Call sign of terminal controller.
	C. FREQ	Recommended TAD frequency that is usable on the FEBA.
	D. FIX/CONT PT	Military grid coordinates and/or NAVAID fix of a control point which is the furthest limit of an attack aircraft's route of flight prior to control by the final controller.
8	REMARKS	Allows incorporation of briefing information not included elsewhere in the request. Enter data for the standard CAS brief.
	1. IP/BP _____	
	2. HDG _____ °MAG: OFFSET L/R	
	3. DISTANCE _____	
	4. TGT ELEVATION _____ FT MSL	
	5. TGT DESCRIPTION _____	
	6. TGT LOCATION _____	
	7. MARK TYPE _____ CODE _____	
	8. FRIENDLIES _____	

Line	Title and Elements	Explanation
	9. EGRESS _____	
	10. BCN-TGT _____ °MAG BCN-GRID _____ / _____	
	11. BCN-TGT _____ METERS TGT GRID _____ / _____	
	12. BCN ELEVATION _____ FT MSL	

E.1.2 Section II — Coordination

9	NSFS	Naval surface fire support coordination.
10	ARTY	Artillery coordination.
11	AIO/G-2/G-3	Air intelligence officer, G2, G3, or other service equivalent coordination.
12	REQUEST A. APPROVED B. DISAPPROVED	Indicates the approval or disapproval of the request.
13	BY	Indicates the individual who approved or disapproved the request.
14	REASON FOR DISAPPROVAL	Self-explanatory.
15	AIRSPACE COORDINATION PLAN A. IS NOT B. NUMBER	The ACA establishes airspace that is reasonably safe from friendly, surface-delivered, non-nuclear fires. The ACA provides a warning to aircraft of the parameters of surface-delivered fire in a specific area. A plan number or code name is issued, as appropriate.
16	IS IN EFFECT A. FROM TIME _____ B. TO TIME _____	Establishes the time period that the applicable ACA plan will be in effect.
17	LOCATION A. FROM COORDINATES B. TO COORDINATES	Grid coordinates of the start/end points of the ACA's centerline.

Line	Title and Elements	Explanation
18	WIDTH (METERS)	Defines the ACA from either side of the centerline.
19	ALTITUDE/VERTEX	ACA altitude given in feet above MSL. (Use A for VERTEX only entry).
	A. MAXIMUM/VERTEX	
	B. MINIMUM	

E.1.3 Section III — Mission Data

Note

Mission data information transmitted to the requesting agency may be limited to those items not included in the request.

20	MISSION NUMBER	Indicates mission number.
21	CALL SIGN	Call sign of mission aircraft.
22	NO. AND TYPE AIRCRAFT	Self-explanatory.
23	ORDNANCE	Type of ordnance either by code number or actual nomenclature.
24	EST/ACT TAKEOFF	Estimated or actual time the mission aircraft will take off.
25	EST TOT	Estimated time on target.
26	CONT PT/RDNVS (COORD/NAVAID FIX)	The furthest limit of the attack aircraft's route of flight prior to control by the final controller. Same as Line 7, item D, when designated in the request.
27	INITIAL CONTACT	Indicates the initial control agency the flight is to contact.
28	FAC/TAC(A) CALL SIGN FREQ	Call sign and frequency of final control agency.
29	AIRSPACE COORDINATION AREA	Refer to Lines 15 through 19 for this data.

30	TGT DESCRIPTION	Self-explanatory.
31	TGT COORD/ELEV	Self-explanatory.
32	BDA REPORT	This optional space is used to record BDA for each mission
	LINE 1/CALL SIGN	Call sign of the reporting aircraft.
	LINE 2/MSN NUMBER	Mission number of the CAS mission for which results are being reported.
	LINE 3/REQ NUMBER	Requesting unit's request number.
	LINE 4/LOCATION	The location of the target when it was attacked.
	LINE 5/TOT	The time the aircraft began attack on the target/the time the aircraft completed the mission and departed the target.
	LINE 6/RESULTS	The specific results of the mission (e.g., "10 tanks destroyed, 150 KIAS, enemy unit neutralized, mission successful").
	REMARKS	Other information appropriate to the tactical situation or as requested.

APPENDIX F

Computation of Naval Gunfire Support Ship Requirements

F.1 COMPUTATION OF DESTRUCTION FIRE AMMUNITION REQUIREMENTS

Computation of the best number of rounds to destroy a target can be accomplished simply and accurately by use of the destruction fire section of the Planning Table, Figure F-1, Parts I through V, as indicated below. Refer to Figure F-1, Part XI, for guidance.

F.1.1 Targets Not Fitting Into Categories of Specified Size

1. Determine target dimensions in deflection and height (or range). If target has significant dimensions in both height and range, convert to either by column 7 of appropriate range table. If target's vertical face is greater than about 1/2 mil, use height; otherwise range. If the target dimension for range is greater than that for height, it is necessary to compute the number of 100-meter squares that the target contains. This is obtained by multiplying the dimensions for deflection and range together and dividing by 100-meter squares. The number of 100-meter squares is then multiplied by "N," hits required, and the number of similar targets to obtain the 63 percent probability of hitting the target.

2. Enter Figure F-1, Part I, The Adjusted True Mean Dispersion Table, with the expected range of the firing battery. Determine the deflection and height (or range, if applicable) dispersion for the firing range. The section of Single Gun Salvos should be used in all cases except where the dimensions in deflection and range are greater than 50 yards by 50 yards in which case, the section for Multigun Salvos is used.

3. Determine the "Half-Measurement Error" by taking one-half the selected dimensions in deflection and height (or range).

4. Divide the half-measurement error in deflection and height (or range) by the dispersion in deflection and height (or range), respectively, to obtain the deflection ratio and the height (or range) dispersion ratio.

5. With the deflection dispersion ratio, then the height (or range) dispersion ratio, in turn, enter the Probability Curve, Figure F-1, Part II, and determine the deflection hit probability and the range hit probability, respectively.

6. Determine the single shot hit probability, the percentage of rounds that should be hits in both deflection and height (or range), by multiplying the deflection hit probability by the height (or range) hit probability.

7. Determine "N," the number of rounds required to obtain a hit 63 percent of the time, by taking the reciprocal of the single shot hit probability.

8. In the case of protected targets, determine the number of hits required from the Hit-Destruction Table, Figure F-1, Part IV.

9. Multiply "N" by the hits required and the number of targets to obtain the total rounds required to destroy the target 63 percent of the time.

10. If necessary to improve the probability of obtaining a hit, enter the Safety Factor Curve, Figure F-1, Part V, with the total rounds; proceed to the intersection of the corresponding line with the curve for the value of "N" and determine one safety factor. Add this number of "N" to obtain about 86 percent hitting probability; add twice this figure to obtain about 95 percent probability.

Example: (See also Item 1 in Figure F-1, Part XI). Intelligence reports indicate three blockhouses with

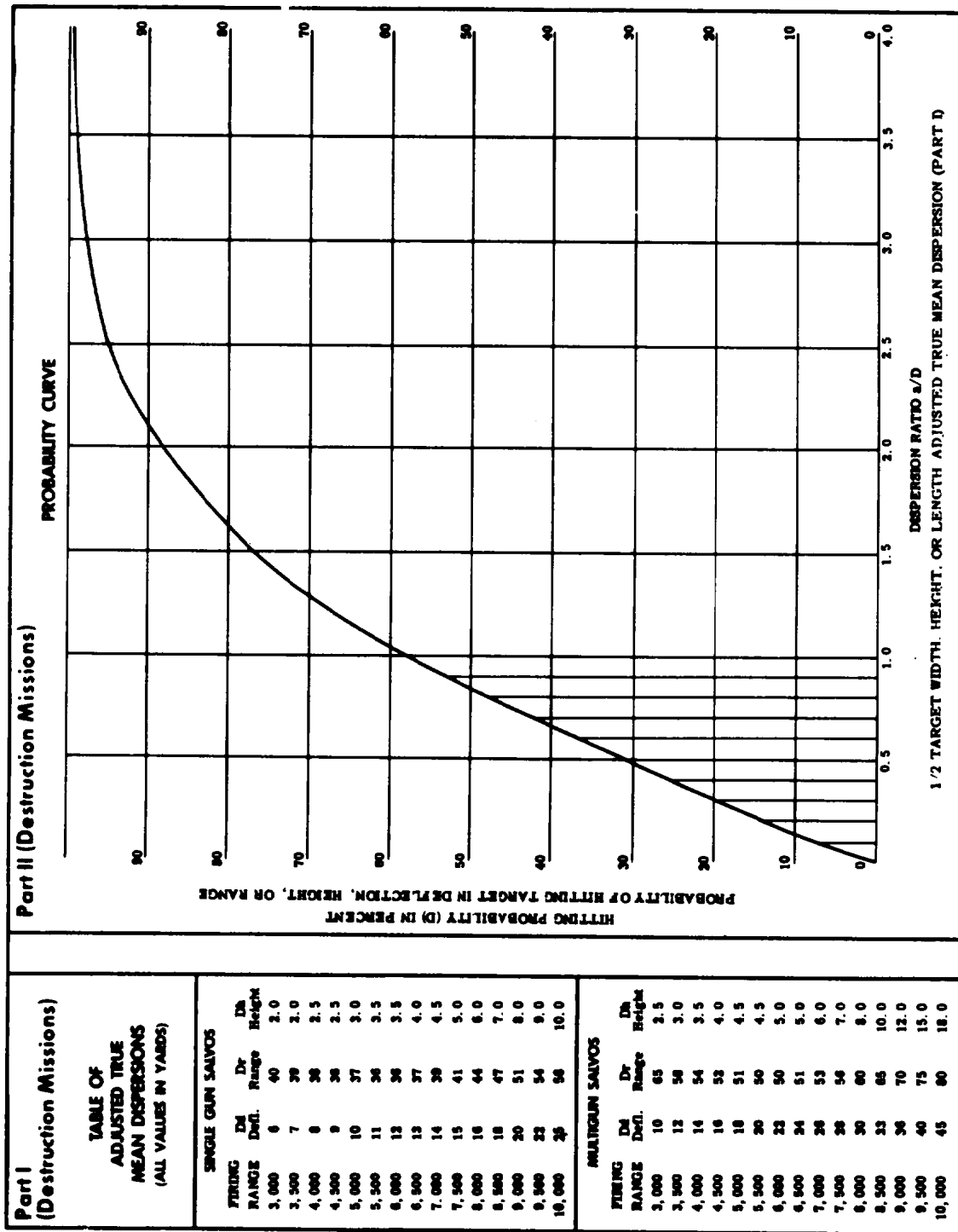


Figure F-1. Planning Table for Naval Gunfire Ammunition Expenditures on Shore Targets (Sheet 1 of 6)

Part III (Destruction Missions)

ROUNDS-PER-HIT TABLE

TO DETERMINE N. THE PROBABLE NUMBER OF ROUNDS REQUIRED TO OBTAIN
ONE HIT ON TARGETS OF SPECIFIED SIZE BASED ON SINGLE-GUN ADJUSTMENT.

FIRING RANGE (yards)	POINT DESTRUCTIVE TARGETS PRESENTING PRIMARILY VERTICAL AREA TO THE ESTIMATED LINE OF FIRE (Dimensions shown in yards, width x height)										NEUTRALIZATION TARGETS REQUIRING DESTRUCTIVE TREATMENT, PRESENTING PRIMARILY HORIZONTAL AREAS ON TERRAIN Dimension in yards, width x depth. A height of 1 yard is assumed (this gives a greater effective depth).					
	3 x 3	6 x 3	3 x 6	6 x 4	10 x 4	15 x 5 x 30 deep.	5 x 5	10 x 10	15 x 15	20 x 20	50 x 50	100 x 100				
X	List a.	List b.	List c.	List d.	List e.	List f.	List g.	List h.	List i.	List j.	List k.	List l.				
X X	14	7	9	6	4	2	20	9	6	4	2	2				
X X	25	12	14	9	6	3	31	13	8	5	2	2				
X X	34	17	19	14	9	4	44	17	10	7	3	2				
X	48	25	25	19	12	5	58	22	12	8	3	2				
3,000	68	37	36	29	17	6	85	30	16	10	3	2				
4,000	100+	56	54	44	25	8	100+	42	22	14	4	2				
5,000		92	83	67	45	10		64	33	21	5	2				
6,000		100+	100	100	64	14		94	48	29	6	2				
7,000																
8,000																
9,000																
10,000																

List a.
Small cave for light gun
Pillbox
AA radar installation
Searchlight
Searchlight control station
Rangefinder (AA)

List b.
Cave for light defense gun
Tank in open
Half-track mounted gun
Truck coast defense gun emplacement
Small blockhouse

List c.
Search radar tower
AA fire control tower
Elevated fuel tanks
Observation tower
Searchlight tower

List d.
Cave for medium defense gun
Medium blockhouse
Large permanent radar installation
Small fuel tank

List e.
Medium coast defense gun emplacement
Large blockhouse

List f.
Tandem C. D. gun emplacement
Missile launcher
control station
Large artillery (200-mm)

List g.
Light mortar posits.
Machine gun posits.

List h.
Medium AA gun emplacement
Fire control station
Observation post

List i.
Medium artillery gun emplacement
Heavy AA gun emplacement

List j.
Light AA battery posits.
Heavy artillery gun emplacement

List k.
Medium AA battery
Ammunition dump area

List l.
Medium artillery battery complete with radar & control stations

Figure F-1. Planning Table for Naval Gunfire Ammunition Expenditures on Shore Targets (Sheet 2 of 6)

Part IV (Destruction Missions)

HIT-DESTRUCTION TABLE (TO DETERMINE NUMBER OF HITS REQUIRED TO DESTROY DESIGNATED TARGETS)

BUNKERS, EMPLACEMENTS, ETC., REQUIRING PENETRATION

DIRECT HITS REQUIRED USING 5" COM AND AP FOR OTHER CALIBERS

Caliber Range	3000	5000	7000	3000	5000	7000	3000	5000	7000	5000	7000	10,000
CONCRETE, REINFORCED:												
1 ft.	1	1	1	1	1	1	1	1	1	1	1	1
2 ft.	1	1	1	1	1	1	1	1	1	1	1	1
3 ft.	*	*	*	1	1	1	1	1	1	1	1	1
4 ft.	*	*	*	*	1	*	1	1	1	1	1	1
6 ft.	*	*	*	*	*	*	1	1	1	1	1	1
10 ft.	*	*	*	*	*	*	*	*	*	*	*	*
SAME, WITH 3' SAND COVER	ADD ONE ROUND TO ABOVE FIGURES											
SAME, WITH EARTH FILL	ADD TWO ROUNDS TO ABOVE FIGURES											
EARTH OR SAND AND LOG BUNKERS (1' LOGS + 3' EARTH OR SAND)	2	2	2	1	1	1	1	1	1	1	1	1

LARGER SHORE TARGETS

DIRECT HITS REQUIRED FOR EACH 100-METER SQUARE--USING HC PROJECTILES

AVERAGE RANGES USED: 5"- 5000; 6"- 6000; 8"- 8000; 16"- 8000	5"	5" SRR	6"	8"	16"
LIGHT STRUCTURES (WOOD FRAME, ETC.)					
STOWAGES	7	11	4	2	1
ADMINISTRATION OR BARRACKS BLDGS.	12	19	8	4	1
STOWAGES	10	16	7	3	1
ADMINISTRATION OR BARRACKS BLDGS.	12	19	8	4	1
STOWAGES	20	32	13	7	2
ADMINISTRATION OR BARRACKS BLDGS.	12	19	8	4	1
STOWAGES	24	39	16	8	3
ADMINISTRATION OR BARRACKS BLDGS.	30	48	20	10	3
STOWAGES	24	3	1	1	1
ADMINISTRATION OR BARRACKS BLDGS.	74	11	4	2	1
STOWAGES	60	95	40	20	8
ADMINISTRATION OR BARRACKS BLDGS.	4	6	3	2	1
STOWAGES	80	125	53	27	11
ADMINISTRATION OR BARRACKS BLDGS.	100	160	65	33	14
STOWAGES	100	160	65	33	14
ADMINISTRATION OR BARRACKS BLDGS.	100	160	65	33	14
STOWAGES	100	160	65	33	14
ADMINISTRATION OR BARRACKS BLDGS.	100	160	65	33	14
STOWAGES	100	160	65	33	14
ADMINISTRATION OR BARRACKS BLDGS.	100	160	65	33	14
STOWAGES	100	160	65	33	14
ADMINISTRATION OR BARRACKS BLDGS.	100	160	65	33	14
STOWAGES	100	160	65	33	14
ADMINISTRATION OR BARRACKS BLDGS.	100	160	65	33	14
STOWAGES	100	160	65	33	14
ADMINISTRATION OR BARRACKS BLDGS.	100	160	65	33	14
STOWAGES	100	160	65	33	14
ADMINISTRATION OR BARRACKS BLDGS.	100	160	65	33	14
STOWAGES	100	160	65	33	14
ADMINISTRATION OR BARRACKS BLDGS.	100	160	65	33	14
STOWAGES	100	160	65	33	14
ADMINISTRATION OR BARRACKS BLDGS.	100	160	65	33	14
STOWAGES	100	160	65	33	14
ADMINISTRATION OR BARRACKS BLDGS.	100	160	65	33	14
STOWAGES	100	160	65	33	14
ADMINISTRATION OR BARRACKS BLDGS.	100	160	65	33	14
STOWAGES	100	160	65	33	14
ADMINISTRATION OR BARRACKS BLDGS.	100	160	65	33	14
STOWAGES	100	160	65	33	14
ADMINISTRATION OR BARRACKS BLDGS.	100	160	65	33	14
STOWAGES	100	160	65	33	14
ADMINISTRATION OR BARRACKS BLDGS.	100	160	65	33	14
STOWAGES	100	160	65	33	14
ADMINISTRATION OR BARRACKS BLDGS.	100	160	65	33	14
STOWAGES	100	160	65	33	14
ADMINISTRATION OR BARRACKS BLDGS.	100	160	65	33	14
STOWAGES	100	160	65	33	14
ADMINISTRATION OR BARRACKS BLDGS.	100	160	65	33	14
STOWAGES	100	160	65	33	14
ADMINISTRATION OR BARRACKS BLDGS.	100	160	65	33	14
STOWAGES	100	160	65	33	14
ADMINISTRATION OR BARRACKS BLDGS.	100	160	65	33	14
STOWAGES	100	160	65	33	14
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STOWAGES	100	160	65	33	14
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ADMINISTRATION OR BARRACKS BLDGS.	100	160	65	33	14
STOWAGES	100	160	65	33	14
ADMINISTRATION OR BARRACKS BLDGS.	100	160	65	33	14
STOWAGES	100	160	65	33	14
ADMINISTRATION OR BARRACKS BLDGS.	100	160	65	33	14
STOWAGES	100	160	65	33	14
ADMINISTRATION OR BARRACKS BLDGS.	100	160	65	33	14
STOWAGES	100	160	65	33	14
ADMINISTRATION OR BARRACKS BLDGS.	100	160	65	33	14
STOWAGES	100	160	65	33	14
ADMINISTRATION OR BARRACKS BLDGS.	100	160	65	33	14
STOWAGES	100	160	65	33	14
ADMINISTRATION OR BARRACKS BLDGS.	100	160	65	33	14
STOWAGES	100	160	65	33	14
ADMINISTRATION OR BARRACKS BLDGS.	100	160	65	33	14
STOWAGES	100	160	65	33	14
ADMINISTRATION OR BARRACKS BLDGS.	100	160	65	33	14
STOWAGES	100	160	65	33	14
ADMINISTRATION OR BARRACKS BLDGS.	100	160	65	33	14
STOWAGES	100	160	65	33	14
ADMINISTRATION OR BARRACKS BLDGS.	100	160	65	33	14
STOWAGES	100	160	65	33	14
ADMINISTRATION OR BARRACKS BLDGS.	100	160	65	33	14
STOWAGES	100	160	65	33	14
ADMINISTRATION OR BARRACKS BLDGS.	100	160	65	33	14
STOWAGES	100	160	65	33	14
ADMINISTRATION OR BARRACKS BLDGS.	100	160	65	33	14
STOWAGES	100	160	65	33	14
ADMINISTRATION OR BARRACKS BLDGS.	100	160	65	33	14
STOWAGES	100	160	65	33	14
ADMINISTRATION OR BARRACKS BLDGS.	100	160	65	33	14
STOWAGES	100				

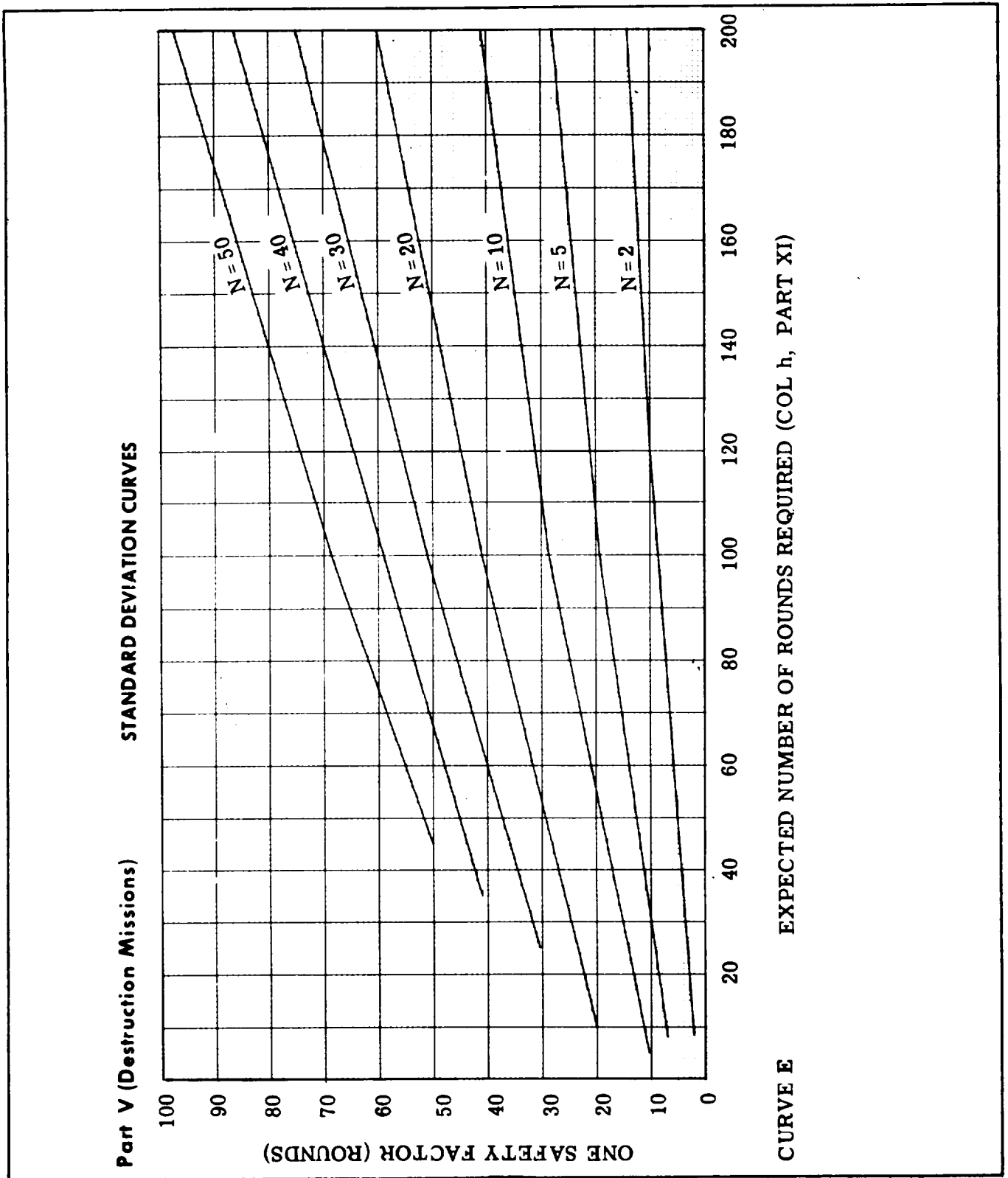


Figure F-1. Planning Table for Naval Gunfire Ammunition Expenditures on Shore Targets (Sheet 4 of 6)

I	Part VI			Part VII	Part VIII	Part IX	Part X		
	NEUTRALIZATION			III HARASSING	ILLUMINATION	INTERDICTION	RESERVE		
CALIBER	AREA or BEACH NEUTRALIZATION (per each 100-meter square except 16')	SUPPRESSION OF ENEMY AIR DEFENSES and COUNTERFIRE (UNOBSERVED)	III HARASSING MISSIONS (PER each 1,000- meter square)	ILLUMINATING MISSIONS (Per Supported BLT)	INTERDICTION MISSIONS	RESERVE FOR CALL FIRE MISSIONS	RESERVE FOR COUNTER MECHANIZED FIRE	RESERVE FOR TARGETS OF OPPORTUNITY AND SAFETY FACTOR	
5-inch	INITIAL: 43 ROUNDS (HC or AAC) MINIMUM: 5 ROUNDS NOTE 1.	15 ROUNDS HC or AAC PER MINUTE PER ENEMY GUN OR SMALL COMPLEX NOTE 2.	24 ROUNDS HC or AAC PER HOUR MINIMUM: 10 ROUNDS ON SMALL TARGETS	48 ROUNDS PER HOUR	12 ROUNDS PER HOUR PER TARGET	48 ROUNDS PER SUPPORTED BATTALION LANDING TEAM PER HOUR	10 ROUNDS PER GUN WITHIN RANGE WHICH CAN BEAR PER ANTICIPATED ATTACK	OPPORTUNITY FIRE: ABOUT 15% PREVIOUS OVERALL TOTAL SAFETY FACTOR: ABOUT 25% PREVIOUS TOTAL-EXCLUDING OPPORTUNITY FIRE.	
8-inch	INITIAL: 14 ROUNDS (HC) MINIMUM: 2 ROUNDS NOTE 1.	7 ROUNDS HC PER MINUTE PER ENEMY GUN OR SMALL COMPLEX. NOTE 2.	12 ROUNDS HC PER HOUR MINIMUM: 10 ROUNDS ON SMALL TARGETS		5 ROUNDS PER HOUR PER TARGET	24 ROUNDS PER GUN SUPPORTED BATTALION LANDING TEAM PER HOUR	10 ROUNDS PER GUN PER ANTICIPATED ATTACK		
16-inch	INITIAL: 4 ROUNDS (HC) MINIMUM: 1 ROUND PER 200 METER SQ. NOTE 1.	2 ROUNDS HC PER MINUTE PER ENEMY GUN OR SMALL COMPLEX NOTE 2.	3 ROUNDS HC PER HOUR MINIMUM: 2 ROUNDS		2 ROUNDS PER HOUR PER TARGET. (USUALLY NOT PRACTICABLE)	12 ROUNDS PER SUPPORTED BATTALION LANDING TEAM PER HOUR	10 ROUNDS PER GUN PER ANTICIPATED ATTACK		
NOTE 1. Duration of initial neutralization period - 30 minutes. For lifting fire, or other reduction desired, reduce the initial figure by one-fourth to the minimum amount listed for each 30-minute period for the duration of neutralization.									
NOTE 2. Initial rounds should be VT-fuzed; subsequent salvoes PDF.									

Figure F-1. Planning Table for Naval Gunfire Ammunition Expenditures on Shore Targets (Sheet 5 of 6)

Part XI																		
AMMUNITION PLANNING FORM (WITH SAMPLE COMPUTATION)																		
ITEM	a.	b.	c.	d.	e.	f.	g.	h.	i.	j.	k.	l.	m.	AMMUNITION REQUIREMENTS (RECAPITULATION AND TOTAL ON PART II, PG. G-13)				
														ROUNDS	CAL	PROJ	FU4F	POR CHG
1	MEDIUM C.D. GUN EMPLACEMENTS (LIST I)	DEST	16"/50 HC	5,000	9 (From PART III)	5	1	45	15	60				60	16/50	HC	DEL	FULL
2	MEDIUM ARTY BATTERY 100 X 100 METERS	AREA NEUT	16"/50 HC/PO	6,000		3					2 HRS	10	30	30	16/50	HC	PDF	FULL
3	BIVOUAC AREA IN WOODS 300 X 300 METERS	HAR	5"/38 AAC FUZE TIME	6,000		2					8 HRS	@ 10 RDS PER HOUR = 80 RDS	2 X 80 = 160	180	5"/38	AAC	MTF	FULL
4	MEDIUM AA GUN EMPLACEMENT (LIST II)	NEUT REQD DEST HANDLING	5"/38 AAC FUZE QUICK	5,000	15 (From PART III)	4	1	60	15	75				75	5"/38	AAC	PDF	FULL
5	ILLUMINATION REQUIREMENTS FOR ONE BLT	ILLUM	5"/38	7,000- 8,000							D-DAY = 4 D + 1 = 4 8 HRS	@ 48 RDS/Hr BLT = 8 X 48 X 1 = 384	384	384	5"/38	ILL	MTF	FULL
6	RESERVE FOR CALL FIRE (D-DAY) + (D + 1)	RESERVE	5"-80%								48 HRS	80 X 48 = 3854 Hr	385 X 48 = 18500	1850	5"/38	AAC	MTF	FULL

Figure F-1. Planning Table for Naval Gunfire Ammunition Expenditures on Shore Targets (Sheet 6 of 6)

approximately 3 feet of sand cover located 500 yards from the beach, presenting a vertical surface to the line of fire with estimated dimensions 10 yards wide and 4 yards high. The walls of the blockhouse are estimated to be reinforced concrete, 4 feet thick. A light cruiser (6-inch guns) is tentatively positioned in a fire support station approximately 4,500 yards offshore, and the planner desires to know the caliber of gun and the approximate number of rounds required to destroy the blockhouses, since they are estimated to be capable of seriously endangering advance of friendly forces. The planner decides that no extraordinary conditions exist and decides to use amounts directly from Figure F-1. He may accomplish ammunition expenditure planning in the following steps:

a. Determine the adjusted true mean dispersions for the battery at the estimated range. Enter the True Mean Dispersion Table (Figure F-1, Part I) with the estimated range of 5,000 yards (4,500 yds. + 500 yds.) to find deflection dispersion (Dd) = 10 yards, and height dispersion (Dh) = 3 yards.

b. Determine the value of a, the half-measurement error, one-half the target width and one-half target height.

$$\text{One-half target width (ad)} = \frac{10}{2} = 5 \text{ yards}$$

$$\text{One-half target height (ah)} = \frac{4}{2} = 2 \text{ yards}$$

c. Determine the dispersion ratio a/D:

$$\text{For width} - \frac{ad}{Dd} = \frac{5}{10} = .500$$

$$\text{For height} - \frac{ah}{Dh} = \frac{2}{3} = .667$$

d. Determine the hit probability in deflection and height by entering the Probability Curve (Figure F-1, Part II) with the computed values of a/D:

$$\text{For deflection} - \text{Probability (Pd)} = .310$$

$$\text{For height} - \text{Probability (Ph)} = .405$$

e. Determine the total hit probability, the total rounds fired that will be hits in both deflection

and height. The percentage of rounds fired that would be target hits is the product of the deflection probability (Pd) and height probability (Ph), or: $.31 \times .40 = .125$, or 12.5 percent of all rounds fired will be hits.

f. Finally, to determine the total rounds fired in order to obtain one target, 63 percent of the time, find (N), the reciprocal of the above percentage figure:

$$N = \frac{1.00}{.125} = 8.0$$

Eight rounds must be fired in order to obtain one hit on each target 63 percent of the time.

g. From Figure F-1, Part IV, determine that 6-inch guns must be used and that 2 hits are required on each target.

h. Multiply the number of hits required by the number of rounds required to produce the desired effect on the target by the number of targets to obtain the expected number of rounds required.

$$8 \times 2 \times 3 = 48, \text{ the rounds required.}$$

i. The importance of the blockhouses is such that greatly increased ammunition expenditure is considered justified. To increase the probability of destruction, the planner decides to allot one standard deviation to increase hitting probability to about 86 percent. Entering the Standard Deviation Curve (Figure F-1, Part V) with $N = 8$, expected rounds = 48, find one standard deviation to be 18 rounds. Total ammunition required is then: $48 + 18 = 66$ rounds . . . to destroy the three blockhouses with 86 percent probability.

F.1.2 Targets Fitting Into Categories of Specified Size. In this case, steps 1 through 7 above are eliminated. The probable number of rounds required to obtain one hit is determined from Figure F-1, Part III, and the remainder of steps are followed as given above. (See Items 2, 3, and 6 of Figure F-1, Part XI).

F.2 COMPUTATION OF NEUTRALIZATION FIRE AMMUNITION REQUIREMENTS

As indicated in Figure F-1, computation of neutralization fire ammunition requirements must be considered under two main categories.

F.2.1 Computation of Area and Beach Neutralization Fire Ammunition Requirements.

In selecting the area to be neutralized prior to H-hour, begin at the beaches and extend inland to the flanks, covering all known and suspected positions of weapons capable of firing on the ship-to-shore movement and landing beaches. Next decide on the density of neutralization in terms of 5-inch AAC projectiles per 100-meter square. Then determine the total number of squares in the area selected and multiply this number by the number of 5-inch shells required to give the desired density. Figure F-1, Part VI, column 1, provides suggested "point of departure" data on all calibers. The mixing of calibers has proven an effective technique in neutralization fire and also aids in reducing the rate of fire required from ships with small caliber guns. Using the figures in column 1, the following formula may be used: Number of 100-meter squares to be neutralized x total of rounds computed for 1/2 hour periods for duration of neutralization = total area + beach neutralization rounds required.

Example 1. (See also Item 4, Figure F-1, Part XI.) Air photographs have indicated the presence of three medium artillery batteries located in area about 100 meters square, 2,000 yards from the beach. The swept area permits stationing fire support ships 4,000 yards offshore. Areas can be taken under fire by friendly artillery batteries after four hours of naval bombardment. A seasoned and experienced destroyer is available for the task. Opposing enemy forces have been in action and are estimated to be 25 percent more effective in action than average artillery personnel. The planner decides that no other extraordinary conditions are foreseeable and elects to utilize figures from the Area Neutralization Table, Figure F-1, Part VI, modified to reflect the estimated 25 percent higher effectiveness of the enemy forces. He then determines the estimated expenditure for the type target from the Area and Beach Neutralization column opposite the 5-inch battery to be 40 rounds per 100-meter square for the first half hour. In the notes he reads that for each reduction desired, the amount should be reduced by one quarter for each 30-minute period to a minimum of 5 rounds; he therefore lists requirements as follows:

1st half hour, per 100-meter square	43 rd.
2nd half hour, per 100-meter square	30 rd.
3rd half hour, per 100-meter square	20 rd.

4th half hour, per 100-meter square	10 rd.
5th through 8th half hour, per 100-meter square (5 RD, X 4)	20 rd.
Total, per 100-meter square	123 rd.

Multiplying the amount required per 100-meter square by the number of 100-meter squares, and adding 25 percent to provide for enemy's high state of readiness, he arrives at his estimate:

$$123 \times 3 + .25(123 \times 3) = 461 \text{ rounds}$$

Example 2. The planner receives intelligence from a target list that four medium AA gun emplacements threaten landings from positions that he estimates can be observed by shipboard or air spotters about 5,000 yards from the destroyer support ship station. Realizing that destruction of these guns is impracticable, he decides that, neutralized, they can be overrun by friendly forces before repairs can put them back into operation. He therefore determines that these neutralization targets require destruction handling, and proceeds to extract the number of rounds required directly from Figure F-1, Part III. He then finds the total ammunition required as in destruction fire. See Item 6, Figure F-1, Part XI.

Example 3. The planner is given a beach 1,000 meters wide and 400 meters deep to be neutralized with LFR 5-inch SSR fire during a period of one hour, one-half hour before and after H-hour. Rocket ship stations are located about 4,000 yards from the center of this area. He proceeds to divide the area into 100-meter squares (40). From Figure F-1, Part VI, Column 1, he finds that 25 rounds will be required per 100-meter square the first half hour. Thereafter, density of neutralization would be reduced by 25 percent each half, and he computes his requirement as follows:

1st half hour (40 x 25) =	1,000 rd.
2nd half hour (40 x 19) =	760 rd.
Total	1,760 rd.

(See Item 9, Figure F-1, Part XI).

F.2.2 Computation of Unobserved Suppression of Enemy Air Defenses and Counterfire Ammunition Requirements.

Determine the number of guns or closely associated complexes and the periods for which suppression of enemy air counterfire

is required. Other conditions permitting, figures given in Figure F-1, Part VI, column 2, may be used as a basis for estimates of rounds required per enemy gun or small complex. Then: number of guns or complexes x minutes suppression is needed x round required per minute = total suppression of enemy air defenses and rounds of counterfire required.

F.3 COMPUTATION OF HARASSING FIRE AMMUNITION REQUIREMENTS

The planner determines the areas in which the maximum effect on the enemy morale may be realized. A priority should be assigned based on the planner's experience of both artillery and naval gunfire effects. Computation then is reduced to the product of these factors: number of 1,000-meter squares in area X number of hours harassment is desired X density-rounds required per hour = total harassing rounds required. See Item 5, Figure F-1, Part XI.

F.4 COMPUTATION OF ILLUMINATION FIRE AMMUNITION REQUIREMENTS

Planners desiring to base estimates of illumination fire expenditures on the number of missions which can be efficiently conducted by naval units in direct support may do so by determining the number of BLTs committed, then utilizing, as a basis, figures provided in Figure F-1, Part VIII, as follows: number of BLTs or other supported units committed X number of hours of low visibility during period of support X number of rounds determined to be required per BLT per hour = total illumination rounds required. Also see Item 8 in Figure F-1, Part XI.

F.5 COMPUTATION OF INTERDICTION FIRE AMMUNITION REQUIREMENTS

For the benefit of planners desiring to use figures based on past experience with both artillery and naval gunfire support in landing operations, Figure F-1, Part IX, has been prepared. The figures present a usable basis for interdiction fire under average past conditions. With these figures, the following may be used: number of interdiction targets X number of rounds per target X number of hours interdiction is to be effected = total interdiction rounds required. Also see Item 7 of Figure F-1, Part XI.

F.6 COMPUTATION OF RESERVE AMMUNITION REQUIREMENTS

F.6.1 Call Fire. For the benefit of planners desiring to estimate requirements based on the number of missions that can be handled efficiently by ships in direct

support, Figure F-1, Part X, column 1, has been prepared. Generally, two missions per hour can be conducted efficiently. Rounds required for these classifications of fire may be computed by the following procedure: number of BLTs or other supported units committed X number of hours of supported required X number of rounds determined to be required per BLT per hour = total call-fire rounds required.

F.6.2 Countermechanized Fire. Ammunition requirements for mechanized targets may be determined on the basis of the estimated number of mechanized attacks the enemy is capable of mounting and the number of guns that can be fired on the mechanized targets within range of the support ships. Consideration must be given to such information as may be obtained in connection with the known battle doctrine of the enemy; that is, if the enemy always has troops accompanying tanks, then VT and HC ammunition must be planned for. Coordinate and concurrent planning must be accomplished with CAS and artillery planners in the planning of countermechanized fire, as well as all other types of fire. Figure F-1, Part X, column 2, indicates that 10 rounds of AP (or Common, in the case of 5-inch) per gun, regardless of caliber, be maintained as the minimum reserve for countermechanized targets.

Obviously, the planner will not know how many ships will be assigned or will be within range. He must therefore estimate this number based on the number expected to be available, and may later correct this figure after total requirements have determined the number and types of support ships needed. An increase should be made in planning estimates for conditions other than ideal for supporting units. Computation of requirements for countermechanized attacks may be made as follows: estimated number of mechanized attacks enemy is capable of mounting X estimated maximum number of ship's guns that can bear on and are within range of any single massed fire target (can be corrected when total requirements are known) X 10 rounds per gun = total number of rounds to be kept in reserve for countermechanized fire.

F.6.3 Opportunity Fire and Safety Factor. (See Figure F-1, Part X, column 3.) Although these considerations seem little related, they are treated together, since computation of requirements is similar. When all other ammunition requirements are estimated, ammunition of all types is summed up to determine an interim total of ammunition requirements. Opportunity fire ammunition and safety factor requirements may then be determined as follows.

F.6.3.1 Opportunity Fire Requirements. Interim total of ammunition for other fire X 15 percent or other

F.6.3.2 Safety Factor. Interim total of ammunition for other fire not including opportunity fire X 25 percent or other estimated percentage of total = total number of rounds to be used for unpredictable purposes for safety.

Computation of ammunition in accordance with these paragraphs will generally assist planners in arriving at estimates on which to base further planning. These estimates must be revised whenever the receipt of new or more reliable intelligence or other information indicates that the preceding estimates were in error.

Following computation of ammunition requirements under each of the categories, the planner needs another form to recapitulate ammunition by calibers and types. For this purpose he may use Figure F-2, Part II. A completed sample form is shown in Figure F-1, Part XI.

The requirements of numbers of fire support ships by type may be determined through the use of Figure F-2, Part IV. The type and number of fire support ships required are determined by comparing the bombardment allowance per ship type with the total number of rounds required by caliber.

F.7.1 Mine Warfare Operations. NGFS is essential for mine warfare units engaged in operations off a defended hostile shore. Maneuverability of mine warfare units is relatively restricted while laying or sweeping mines. These units are not capable of protecting themselves from air attacks and artillery. Protection from shore battery and air attack must be furnished by ships whose primary mission is gunnery. In determining the means necessary for this support, the planner must be familiar with the details of the mine warfare plan and the enemy's capability of interfering with mine warfare operations.

F.7.1.1 Determination of Ammunition Requirements. The targets that may interfere with mine warfare can be divided into two general classes — those requiring neutralization and those requiring destruction. For example, open mounts and emplacements without overhead cover may be neutralized. Casemates with

Figure F-2. Forms for Compilation of Ammunition and Fire Support Ship Requirements (Sheet 1 of 3)

F.7.2 Beach Reconnaissance and Underwater Demolition Operations. The nature of these operations will influence the type of gunfire support provided. If the operation is to be conducted by stealth, the major role of NGFS will be counterbattery fire and target of opportunity missions. The gunfire support plan will not be executed unless the operation is opposed by the enemy. If the operation is to be conducted without stealth, NGFS generally will be required to neutralize the selected landing site(s) and adjacent areas and to destroy enemy installations capable of interference. In addition, it usually is desirable to isolate the selected landing site(s) and adjacent areas by interdiction fire.

F.7.2.1 Assembly of Data. By examination of the plans for beach reconnaissance and underwater demolition, or through liaison with the support unit, information on items listed below is obtained. This information forms the basis for determining the support required.

1. Location, number, and extent of beaches on which operations are to be conducted
2. Scheme of operations to include approach and withdrawal routes, duration, date, and time of operations
3. Estimated NGFS requirements.

F.7.2.2 A Study of Intelligence. The study on beaches and adjacent areas is made to determine:

1. Numbers and types of targets
2. Areas in which direct and indirect fire weapons capable of firing on the underwater demolition personnel, craft, or fire support ships may be located
3. Routes of approach into the area which may be used by the enemy to reinforce beach defenses

UNCLASSIFIED (CONFIDENTIAL when filled in)				
Part III FIRE SUPPORT SHIP REQUIREMENTS FORM				
Total Ammunition Required		Bombardment Allowance per Ship	Type and Number of Fire Support Ships	Remarks
Caliber by Type	Number of Rounds			

UNCLASSIFIED (CONFIDENTIAL when filled in)

Figure F-2. Forms for Compilation of Ammunition and Fire Support Ship Requirements (Sheet 3 of 3)

4. Enemy forces in the immediate area.

F.7.2.3 Determination of Ammunition Requirements. The total ammunition requirements are determined as indicated in the preceding paragraphs. Forms suitable for use in this determination are shown in Figure F-2. (See also Figure F-1, Part XI).

F.7.2.4 Determination of Fire Support Ship Requirements. Determination is based upon:

1. Types, calibers, and amounts of ammunition expenditure required

2. Rates of fire required

3. Probable firing ranges

4. Location of targets with respect to the site(s) of operations.

F.7.2.5 Tasks Required of Fire Support Ships. Fire support ships should be assigned tasks for which they are best suited.

APPENDIX G

Naval Gunfire Support Planning Documents

- G.1 Naval Gunfire Estimate of Supportability**
- G.2 Overall Naval Gunfire Support Requirements Letter**
- G.3 Detailed Naval Gunfire Support Requirements Letter**
 - G.3.1 Detailed Requirements for Pre-D-Day Naval Gunfire Support**
 - G.3.2 Detailed Requirements for D-Day Naval Gunfire Support**
 - G.3.3 Detailed Requirements for Post-D-Day Naval Gunfire Support**

G.1 NAVAL GUNFIRE ESTIMATE OF SUPPORTABILITY

CLASSIFICATION

Copy no. __ of __ copies
Originating section
Parent headquarters
Place of issue
Date/time of issue

NAVAL GUNFIRE SUPPORT ESTIMATE

Ref: (a) Maps:
(b)
etc.

1. () MISSION

- a. () Basic Mission. (Of the command as a whole.)
- b. () Previous Decisions. (If any.)
- c. () Purpose of This Estimate. (To determine the course of action that can be best supported by naval gunfire.)

2. () SITUATION AND CONSIDERATIONS (Omit subparagraphs not applicable.)

- a. () Enemy
 - (1) () Present Disposition of Major Elements. (Reference may be made to the intelligence estimate.)
 - (2) () Major Capabilities. (Enemy tactical capabilities likely to affect naval gunfire matters.)
 - (3) () Other Capabilities. (Those of a nontactical nature which are likely to affect the naval gunfire situation.)

CLASSIFICATION

b. () Own Forces

(1) () Own Courses of Action. (A statement of the tactical courses of action under consideration.)

(2) () Naval Gunfire Support Means. (A breakdown of the number and types of ships that will be available for the operation. At this stage of the operation, this may be purely an estimate from the CATF.)

(3) () Training. (A statement of the state of training of shore fire control parties and the ships that will be supporting the operation, if known.)

c. () Characteristics of the Area. (Those affecting the naval gunfire situation such as weather, terrain, and hydrography. Reference may be made, in part, to the intelligence estimate.)

d. () Assumptions. (If any.)

e. () Special Factors. (Items not covered elsewhere which may have a bearing on the naval gunfire situation.)

3. () NAVAL GUNFIRE ANALYSIS

(Under each of the following subheadings each course of action under consideration is analyzed in the light of all significant factors to determine problems which will be encountered, measures required to solve such problems, and any limiting features which will exist.)

a. () Hydrography

b. () Terrain

c. () Weather

d. () Means Required

e. () Training

f. () Intelligence

g. () Helicopter Support Requirements

h. () Electronic Warfare

i. () Miscellaneous

4. () CONSIDERATIONS HAVING EQUAL EFFECT

CLASSIFICATION

5. () EVALUATION

(Based on the foregoing analysis, the advantages and disadvantages of each course of action under consideration are summarized and compared from a naval gunfire viewpoint.)

6. () CONCLUSIONS (Omit subparagraphs not applicable.)

- a. () (A statement as to which course of action under consideration can best be supported from a naval gunfire viewpoint.)
- b. () (A statement of the salient disadvantages which renders the other courses of action less desirable from a naval gunfire viewpoint.)
- c. () (A statement of significant naval gunfire problems to be solved and limitations to be taken into account.)
- d. () (A statement of measures required to solve naval gunfire problems involved.)

Name
Rank and Service
Naval Gunfire Officer

G.2 OVERALL NAVAL GUNFIRE SUPPORT REQUIREMENTS LETTER

CLASSIFICATION

HEADQUARTERS
III MARINE EXPEDITIONARY FORCE (TF-___)
FPO SAN FRANCISCO, CALIFORNIA 96602

15 January 19XX

From: Commander Landing Force (CTF___)

To: Commander Amphibious Task Force (CTF___)

Subj: Overall naval gunfire requirements for Operation ROYAL OAK

Ref: (a) CTF___ltr ser___to CTF___; Subj: Planning schedule

Encl: (1) Pre-D-Day/Pre-H-Hour Target Destruction Overlay

(This overlay will indicate the location of specific targets and target areas requiring destructive fires prior to H-hour. Marginal data or a tab to the enclosure must be provided to show coordinates and the nature of each target/target area indicated on the overlay.)

(2) Landing Beach/Landing Zone Neutralization Overlay

(This overlay will indicate target areas within which the landing force requires neutralization fires immediately prior to landing. Marginal data or a tab must be provided to indicate coordinates of the center and the size of each target area.)

1. () In accordance with reference (a), overall requirements for landing force naval gunfire requirements for Operation ROYAL OAK are herewith submitted.

2. () Pre-D-Day/Pre-H-Hour Requirements. Enclosure (1) indicates the targets requiring destruction during the pre-D-day bombardment (or prior to H-hour on D-day if no advance force operations are conducted.)

3. () Landing Beach/Landing Zone Neutralization. Enclosure (2) indicates in which landing beach/landing zone preparation fires will be required prior to H-hour. It is preferable that these fires be executed during the period H-30 minutes to H-5 minutes.

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CLASSIFICATION

4. () Duration of Pre-D-Day/Pre-H-Hour Bombardment. Following is the estimated number of hours required for destructive fires during pre-D-day/pre-H-hour operations:

<u>Number of Missions</u>	<u>Caliber Required</u>	<u>Missions Per Hour</u>	<u>Ship/Hours By Type</u>
_____	_____	_____	_____
_____	_____	_____	_____

5. () Ships and Spotting Aircraft Required. The requirements for ships and spotting aircraft for pre-D-day, D-day, and post-D-day periods are as follows:

	<u>SHIPS</u> (by type)	<u>SPOTTING AIRCRAFT</u> <u>VMFA</u>	<u>HMLA</u>
Pre-D-Day			
D-Day			
Post-D-Day			

6. () Ammunition Required. The requirements for ammunition by type and caliber for pre-D-day, D-day, and post-D-day periods are as follows:

PERIOD	PRE-D-DAY		D-DAY		POST-D-DAY	
TYPE AMMO	5"	Other (Specify)	5"	Other (Specify)	5"	Other (Specify)
AP						
HC						
AAC						
COM						
ILL						
WP						

7. () Radio Frequencies. The radio frequencies required for shore fire control parties during the D-day and post-D-day periods are as follows:

CLASSIFICATION

a. () Frequency Requirements

	<u>Frequencies</u>		<u>SFCP</u>
	<u>Primary</u>	<u>Alternative</u>	
D-Day	_____	_____	_____
Post-D-Day	_____	_____	_____

b. () Alternate Communication Requirements

B. C. SCOPE
Chief of Staff

G.3 DETAILED NAVAL GUNFIRE SUPPORT REQUIREMENTS LETTER

CLASSIFICATION

**HEADQUARTERS
III MARINE EXPEDITIONARY FORCE (TF-____)
FPO SAN FRANCISCO, CALIFORNIA 96602**

15 January 19XX

From: Commander Landing Force (CTF____)

To: Commander Amphibious Task Force (CTF____)

Subj: Detailed naval gunfire support requirements for Operation ROYAL OAK

Ref: (a) CTF____ltr ser____to CTF____; Subj: Allocation for NGF support means

**Encl: (1) Detailed Requirements for Pre-D-Day NGF Support
(2) Detailed Requirements for D-Day NGF Support
(3) Detailed Requirements for Post-D-Day NGF Support**

1. () In accordance with reference (a), naval gunfire requirements for support of III MEF during Operation ROYAL OAK are set forth in enclosures (1) through (3).

2. () In the event that any of these requirements cannot be fulfilled, it is requested that this headquarters be informed as soon as possible.

**B.C. SCOPE
Chief of Staff**

Page number

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G.3.1 Detailed Requirements for Pre-D-Day Naval Gunfire Support

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1. () Target Attack Priority. (As directed by the commander landing force.)
 - a. () Priority I.
 - b. () Priority II.
 - etc.
2. () Targets to be Attacked During Pre-D-Day Operations. (Refer to tabs that would normally accompany this enclosure. Tab A will be an overlay indicating which targets the commander landing force wants attacked during pre-D-day operations. Additional tabs should be attached to provide sufficient information to the amphibious task force planners to enable them to plan for an attack on each target as recommended by the commander landing force. Suggested forms are included in this appendix.)
3. () Recommended Amounts of Ammunition Required for Pre-D-Day Operations. (This paragraph indicates the total number of rounds required to support the recommendations of the landing force for pre-D-day operations. This information should be presented in a tabular form as indicated below:)

	<u>5"</u>	<u>Other</u> (Specify)
a. () Destruction Fires:	_____	_____
b. () Neutralization Fires:	_____	_____
c. () H&I Fires:	_____	_____
d. () Total Ammunition:	_____	_____

(Attachments to this enclosure will show the number of rounds to be fired on each target.)

4. () Estimated Duration of Pre-D-Day Bombardment. (This paragraph is presented in tabular form as indicated below. The estimated time required to fulfill landing force requirements is based on the following factors: total number of missions to be fired; number of missions that may be fired per day/hour; and number and types of ships that can be expected to be made available for pre-D-day fires.)

CLASSIFICATION

a. ()	<u>Number of Missions</u>	<u>Caliber Required</u>	<u>Missions Per Hour</u>	<u>Ship/Hours By Type</u>
	_____	5"	*	_____

* Based on rates of fire and whether or not an observation agency will be available to adjust fires.

b. () (Duration of pre-D-day bombardment to accomplish the above in ____ days.)

5. () Number and Type of Ships and Spotting Aircraft to Accomplish Requirements

a. () Ships: (List of ships, by type, required to support pre-D-day operations.)

(1) () CG:

(2) () DD:

(3) () BB:

(4) () FF:

etc.

b. () Spotting Aircraft: (Indicate number and type needed and the agency responsible for furnishing the spotters/observers.)

6. () (Additional paragraphs may be added in order to include information not appearing in any of the preceding paragraphs, but which may be required by CATF.)

TABS:

- A: Pre-D-Day Detailed Requirements Overlay. (Omitted) (The overlay should be a graphical presentation of landing force requirements during pre-D-day operations. All targets which the commander landing force wants attacked during this time period should be plotted on the overlay.)
- B: Ammunition Computation Form for Pre-D-Day Operations. (A sample is included to illustrate a type of form that may be utilized to fulfill this requirement.)
- C: Ammunition Recapitulation Form for Pre-D-Day Operations. (A sample is included to illustrate a type of form that may be utilized to fulfill this requirement.)

Page number

CLASSIFICATION

G.3.2 Detailed Requirements for D-Day Naval Gunfire Support

CLASSIFICATION

1. () Target Attack Priority. (As directed by the commander landing force.)

a. () Priority I.

b. () Priority II.

etc.

2. () Targets and Target Areas to be Attacked During D-Day. (The purpose of this paragraph is to show the location of the targets and indicate the time of fire on targets that the landing force recommends for attack. This is best accomplished by subdividing the paragraph and referencing appropriate tabs to this enclosure. The location of targets and target areas will be included on the Recommended D-Day Naval Gunfire Support Operations Overlay which will be attached. Also accompanying this enclosure will be a Recommended D-Day Schedule of Fires which will indicate the times at which the landing force desires specific targets and target areas to be attacked. Depending upon the complexity of the operation, additional tabs may be included to depict recommended gunfire support operations for helicopterborne landings, raids in support of the main effort, alternate landing plan requirements, etc. Each of these tabs will be referred to in subparagraphs as required.)

3. () Recommended Amounts and Types of Ammunition Required. (Tabs will be attached to this enclosure which will indicate a detailed breakdown of ammunition by caliber, amount, and types required for D-day naval gunfire support. These tabs will be referenced in this paragraph. A general summary in tabular form may be included as indicated below:)

CALIBER	<u>5"</u>	<u>Other</u> (Specify)
a. () Fires Prior to H-Hour:	_____	_____
b. () Landing Beach Prep:	_____	_____
c. () Landing Zone Prep:	_____	_____
etc.		
TOTAL	_____	_____

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4. () Recommended Types and Numbers of Ships and Spotting Aircraft for Assignment in Direct and General Support of Landing Force Units. (The information required in this paragraph can be best illustrated in tabular form as indicated below:)

<u>Mission & Unit</u>	<u>Type Ship</u>	<u>Airspot</u>	<u>Remarks</u>
General Support-III MEF	DD	YES	
General Support-3d MarDiv	DD	YES	
General Support-4th MarRegt	DD	YES	
etc.			

5. () Recommended Zones of Fire, Fire Support Areas, and Fire Support Stations. (Reference the Recommended D-Day Naval Gunfire Support Operations Overlay which will be attached as a tab to this enclosure.)

6. () Number of Frequencies Required for Naval Gunfire Support, Naval Gunfire Ground Spotting Control and Air Spot Nets. (The information required in this paragraph can be best illustrated in tabular form as indicated below:)

<u>Description</u>	<u>Frequencies Required</u>
III MEF Naval Gunfire Support Net	1 HF
3d MarDiv Naval Gunfire Support Net	1 HF
3d MarDiv Radar Beacon Net	1 HF (or 1 VHF)
etc.	

TABS: (The number of tabs attached to this enclosure of the detailed naval gunfire support requirements will vary with each operation. A brief description of those normally required to present a complete picture of landing force recommendations for D-day naval gunfire support are furnished below or appended.)

- A. Recommended D-Day Naval Gunfire Support Operations Overlay. (Omitted) (This overlay will be similar in form to the one accompanying the Landing Force Naval Gunfire Plan. All targets and target areas that the commander landing force wants attacked should be indicated. In addition, zones of fire and recommended fire support areas and stations should be included.)
- B. Recommended D-Day Schedule of fires. (Omitted) (The format of this tab will be similar to the D-Day Schedule of Fires attached to the Landing Force Naval Gunfire Plan. Its primary purpose is to provide the landing force recommendations for the timing of fires to be provided on D-day.)
- C. Ammunition Computation Form for D-Day Operations. (Omitted)
- D. Ammunition Recapitulation Form for D-Day Operations. (Omitted)

Page number

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G.3.3 Detailed Requirements for Post-D-Day Naval Gunfire Support

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(The preparation of detailed requirements for post-D-day support for any operation is basically an estimate of what support will be required after D-day. This estimate is based on guidance from the CLF, an analysis of the concept of operations ashore, and any other information which may assist the landing force gunfire planner in arriving at a logical estimate. As the operation progresses, the process of arriving at future naval gunfire needs may become more refined; at this time, more accurate requirements should be forwarded to CATF. The following paragraphs will normally be included in the Detailed Requirements for Post-D-Day Naval Gunfire Support:)

1. () Estimated Daily Requirements in Number and Type of Ships and Air Spot

<u>Time Period</u>	<u>Daily Ship Requirement</u>	<u>Daily Air Spotting Requirement</u>
--------------------	-------------------------------	---------------------------------------

2. () Estimated Daily Ammunition Expenditures by Amount and Type

<u>Time Period</u>	<u>Daily Ammunition Expenditures</u>	
	<u>5"</u>	<u>Other (Specify)</u>

3. () Number of Frequencies Required

<u>Time Period</u>	<u>Frequencies for Landing Force Support</u>	<u>Frequencies for Air Spotting</u>
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APPENDIX H

Format for Naval Gunfire Annex

- H.1 Landing Force Naval Gunfire Plan**
- H.1.1 Naval Gunfire Operations Overlay**
- H.1.2 D-Day Destruction and Neutralization Fire**
- H.1.3 Prearranged Deep and Close Supporting Fires**
- H.1.4 Supporting Fires for Helicopterborne Operations**
- H.1.5 Landing Beach Preparations**
- H.2 Schedule of Fires**
- H.3 Radar Beacon Plan**

H.1 LANDING FORCE NAVAL GUNFIRE PLAN

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CARTAGENA, SPAIN
150900 May 19XX
Msg. Ref:

TAB C (Naval Gunfire Plan) to APPENDIX 12 (Fire Support) to ANNEX C (Operation Order 1-XX)

- Ref:
- (a) Maps: ITALY, 1:50,000; Sheets VESUVIO, POZZUOLI, NAPOLI
 - (b) Tab C (Naval Gunfire Plan) to Appendix 12 (Fire Support) to Annex C (Operations) to Amphibious Task Force (TF-161) Operation Plan 1-XX.
 - (c) NWP 3-09.11M, Supporting Arms in Amphibious Operations
 - (d) FMFM 6-18, Techniques and Procedures for Fire Support Coordination

Time Zone: B

1. () MISSION

a. Task Organization

TG ____ . ____, Fire Support, Group RADM _____ COMCRUDESGRU _____

2. () SITUATION

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3. () EXECUTION

- a. () At BMNT, D-day, take fire support stations as assigned in Enclosure 1 (Naval Gunfire Operations Overlay), and conduct destruction and neutralization gunfire in Naples sector in accordance with Enclosure 2 (Schedule of Fires, D-Day).
- b. () Ship Assignments (effective D-day only):

<u>SHIP</u>	<u>MISSION</u>	<u>SUPPORTED UNIT</u>
(1) DD-945:	General Support	2nd Marine Division
(2) DD-944:	General Support	2nd Marine Division
(3) DD-970:	General Support	2nd Marine Division
(4) DD-942:	General Support	6th Marines
(5) DD-714:	General Support	6th Marines
(6) DD-941:	Direct Support	1/6
(7) DD-943:	Direct Support	2/6
(8) DD-931:	Direct Support	3/6
(9) DD-946:	General Support	8th Marines
(10) DD-969:	General Support	8th Marines
(11) DD-938:	Direct Support	1/8
(12) DDG-23:	Direct Support	2/8
(13) DD-933:	Direct Support	3/8

c. () Coordinating Instructions

- (1) () For details concerning fire support areas, fire support stations, boundaries, and zones of fire, see Enclosure 1 (Naval Gunfire Operations Overlay).
- (2) () For details concerning the schedule of fire, see Enclosure 2 (Schedule of Fires, D-Day).
 - (a) () CTF-161 (CATF) and CTF-165 (CLF) receive reports of progress and touchdown of leading waves from the central control officer and from airborne observers. From H-hour until completion of scheduled fires or until SFCs commence to function ashore, air observers on station, enemy AAW permitting, will observe and report progress of troops

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ashore over normal tactical nets. CTF-165 (CLF) recommends necessary adjustments to the schedule of fire to CTF-161 (CATF) who will direct alterations to the schedule over the naval gunfire control net.

- (b) () Ships execute scheduled fires using air or ship spot to the maximum degree possible.
- (3) () Target priority in accordance with reference (d).
- (4) () Countermechanized procedures in accordance with Tab H (Countermechanized Plan) to Appendix 12 (Fire Support).
- (5) () Coordination of naval gunfire with air and artillery support in accordance with paragraph 3 of Appendix 12 (Fire Support).
 - (a) () Smoke and illumination will be employed only on the request of the supported troop unit.
 - (b) () Clearance to attack targets of opportunity outside of assigned zones of fire will be requested from the agency controlling fires in the zone in question. After H-hour, direct support ships provide gunfire support only as directed by Enclosure 2 (Schedule of Fires, D-Day), the supported unit, or the agency controlling fires. General support ships may attack any target of opportunity located within their assigned zone of fire without further clearance, providing the line of fire does not endanger friendly forces.
- (6) () Restrictions
 - (a) () Safety limits for the placement of fires in accordance with reference (c).
 - (b) () Airspace coordination areas in accordance with reference (b).
 - (c) () VT fuzes will not be employed when the line of fire passes within 300 yards of friendly ships, troops, or landing craft or in the vicinity of friendly aircraft. This restriction does not apply to the CVT fuze.
- (7) () Unless otherwise directed, or requested by the adjusting agency, standard fire for effect salvos for call fires will be:
 - (a) () 5": 16 rounds (4 guns-4 salvos; 2 guns-8 salvos; 1 gun-16 salvos).
 - (b) () Other (specify):
- (8) () Massing of fires by two or more ships will be accomplished in accordance with COMNAVSURF _____ Instruction _____ and FMF _____ SOP _____.
- (9) () Air spot services for fire support ships will be provided by CTF _____. Details of air spot availability are contained in Tab A (Air Fire Plan). Initial assignment of spotting aircraft to fire support ships on D-day is indicated in Enclosure 2 (Schedule of Fires, D-Day).

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(10) () Routine relief of fire support ships will be as directed by CTF-161. Submit requests for ships, spotting aircraft, frequencies, and other requirements by 1400 daily.

4. () ADMINISTRATION AND LOGISTICS

- a. () For initial bombardment allowance of fire support ships, see Enclosure 2 (Schedule of Fires, D-Day).
- b. () Ammunition replenishment, see Appendix 6 (Inventory of Replacement Ammunition) to reference (b).
- c. () Reports, see Enclosure 3 (Naval Gunfire Reports).

5. () COMMAND AND SIGNAL

- a. () Communications in accordance with Tab G (Fire Support Communications) to Appendix 12 (Fire Support) to Annex K (Communications-Electronics).
- b. () Employment of radar beacons in accordance with Enclosure 4 (Radar Beacon Plan).

ACKNOWLEDGE RECEIPT

BY COMMAND OF MAJOR GENERAL WHITE

Colonel, U.S. Marine Corps
Chief of Staff

ENCLOSURES:

- 1 - Naval Gunfire Operations Overlay
- 2 - Schedule of Fires, D-Day
- 3 - Naval Gunfire Reports
- 4 - Radar Beacon Plan

DISTRIBUTION: Annex Z

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H.1.1 Naval Gunfire Operations Overlay

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150900 May 19XX
Msg. Ref:

ENCLOSURE 1 (Naval Gunfire Operations Overlay) to TAB C (Naval Gunfire Plan) to APPENDIX 12 (Fire Support) to ANNEX C (Operations) to Operation Order 1-XX

Ref: (a) Maps: ITALY, 1:50,000; Sheets VESUVIO, POZZUOLI, NAPOLI

Time Zone: B

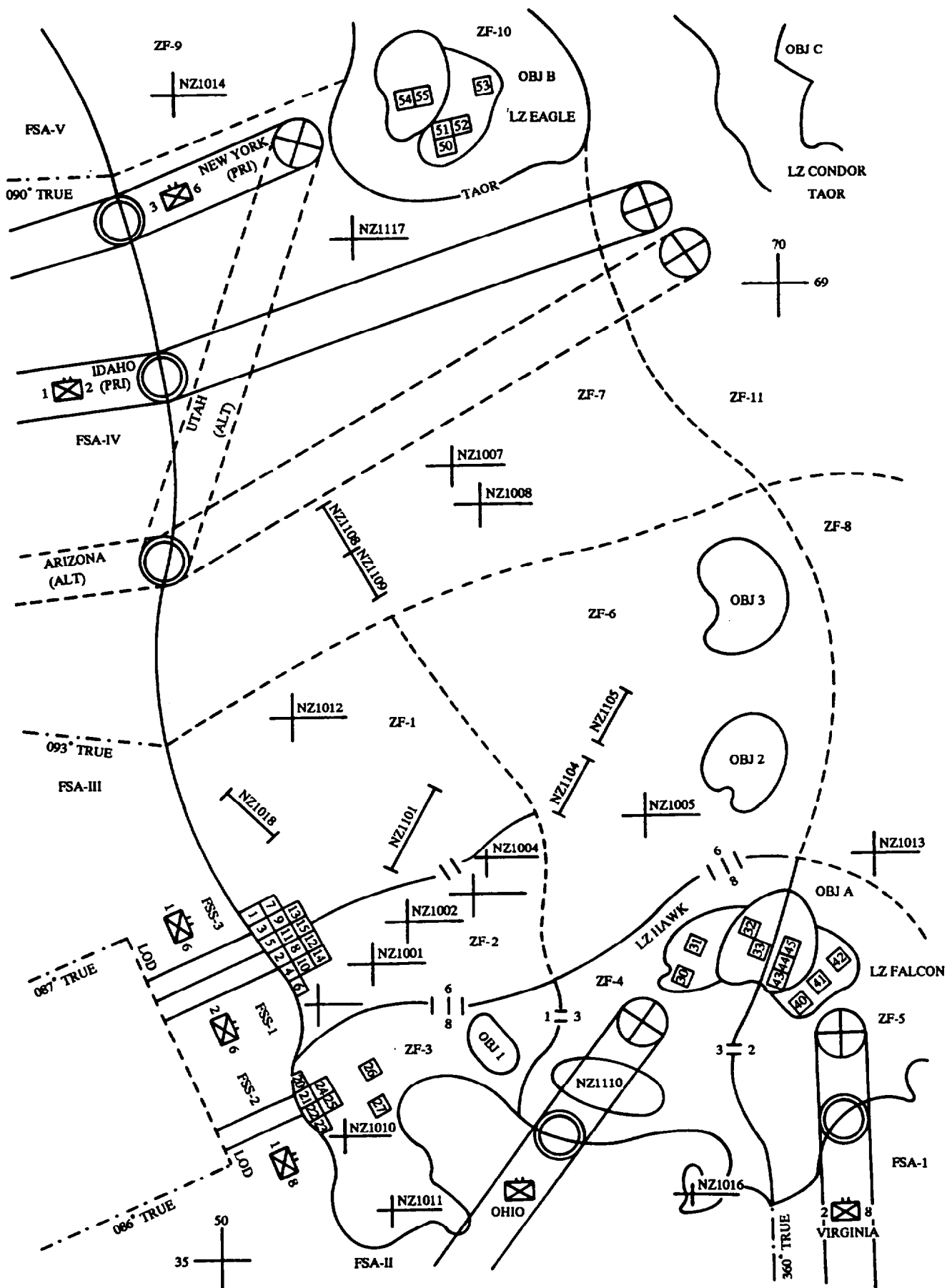
BY COMMAND OF MAJOR GENERAL WHITE

Colonel, U.S. Marine Corps
Chief of Staff

DISTRIBUTION: Annex Z

Page number

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H.1.2 D-Day Destruction and Neutralization Fire

CLASSIFICATION

MARGINAL DATA TO NGF SUPPORT OPERATIONS OVERLAY

D-DAY DESTRUCTION AND NEUTRALIZATION MISSIONS PRIOR TO H-30 MINUTES AND
ALLOCATIONS OF AMMO FOR TARGETS OF OPPORTUNITY PRIOR TO H-HOUR

TGT OR AREA #	DESCRIPTION	COORD	ALT FT	SIZE YDS.	BEARING GRID NO.	CAL & AMT AMMO		REMARKS
						5"	Other (Specify)	
NZ1001	Wpns Revet	571450	50	4x6	-	42		Scheduled, Destruction
NZ1002	AT Wpns	581461	78	3x6	-	33		Scheduled, Destruction
NZ1003	OP	598468	110	10x10	-	30		Scheduled, Neutralization
NZ1004	OP	609473	115	10x10	-	30		Scheduled, Neutralization
NZ1005	Pillbox	652500	71	4x8	-	35		Scheduled, Neutralization
NZ1007	Pillbox	592599	80	4x8	-	35		Scheduled
NZ1008	OP	595592	80	10x8	-	35		Scheduled
NZ1010	Wpns Revet	552386	35	4x8	-	48		Scheduled, Destruction
NZ1011	OP	570365	45	10x10	-	30		Scheduled, Neutralization
NZ1012	AT Wpn	558528	35	4x8	-	40		On Call, Destruction
NZ1014	AAA Posit	520741	61	10x10	-	33		Scheduled, Destruction
NZ1015	AW Posit	555440	20	6x6	-	42		Scheduled, Destruction
NZ1016	OP	647365	25	10x10	-	30		Scheduled, Neutralization
NZ1018	AW in Trench	548505	15	100x600	155°	70		On Call, Neutralization
NZ1101	Trench Line	582473	135	200x1500	30°	110		Scheduled, Neutralization
NZ1104	Plat Posit	625495	65	200x600	45°	70		On Call, Neutralization
NZ1105	Plat Posit	635505	65	200x600	45°	70		On Call, Neutralization

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TGT OR AREA #	DESCRIPTION	COORD	ALT FT	SIZE YDS.	BEARING GRID NO.	CAL & AMT AMMO		REMARKS
						5"	Other (Specify)	
NZ1108	Plat Posit	562590	45	200x800	170°	80		On Call, Neutralization
NZ1109	Plat Posit	571582	55	200x800	170°	80		On Call, Neutralization
NZ1110	Co Assy Area	630407	330	400x1000	90°	95		Scheduled, Neutralization
NZ1117	Wpns Revet	570691	80	4x6	-	28		Scheduled, Destruction
TOTAL						1066		
TARGETS OF OPPORTUNITY						1700		
TOTAL AMMUNITION						2766		

H.1.3 Prearranged Close and Deep Supporting Fires

TGT #	DESCRIPTION	COORD UTM	ALT FT	SIZE YDS.	BEARING GRID NO.	CAL & AMT AMMO		REMARKS
						5"	Other (Specify)	
NZ1013	Co Billet	552502	718	200x400	80°	55		H+2-H+30 Neutralization
NZ1018	Plat Posit	723468	17	100x600	135°	50		H+2-H+30 Neutralization
TOTAL AMMUNITION						105		

Page number

CLASSIFICATION

H.1.4 Supporting Fires for Helicopterborne Operations

CLASSIFICATION

SUPPORTING FIRES FOR HELICOPTERBORNE OPERATIONS

TGT OR AREA #	DESCRIPTION	COORD	ALT FT	SIZE YDS.	BEARING GRID NO.	CAL & AMT AMMO		REMARKS
						5"	Other (Specify)	
40	LZ Falcon Prep	681430	980	100x100	75°	43		
41	LZ Falcon Prep	686432	995	100x100	75°	43		
42	LZ Falcon Prep	683428	975	100x100	75°	43		
43	Obj A Prep	678438	930	100x100	75°	43		
44	Obj A Prep	677436	900	100x100	30°	43		
45	Obj A Prep	680440	920	100x100	30°	43		
30	LZ Hawk Prep	658442	1020	100x100	55°	43		
31	LZ Hawk Prep	661445	1050	100x100	55°	43		
32	Obj A Prep	667445	1260	100x100	50°	43		
33	Obj A Prep	670442	1120	100x100	50°	43		
50	LZ Eagle Prep	580719	55	100x100	85°	43		
51	LZ Eagle Prep	578721	50	100x100	85°	43		
52	LZ Eagle Prep	584722	55	100x100	85°	43		
53	LZ Eagle Prep	587726	65	100x100	90°	43		
54	Obj B Prep	580733	47	100x100	90°	43		
55	Obj B Prep	577733	60	100x100	90°	43		
TOTAL AMMUNITION						688		

Page number

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H.1.5 Landing Beach Preparation

CLASSIFICATION

LANDING BEACH PREPARATION

TGT OR AREA #	DESCRIPTION	COORD	ALT FT	SIZE YDS.	BEARING GRID NO.	CAL & AMT AMMO		REMARKS
						5"	Other (Specify)	
1	Red Beach Prep	541456	15	100x100	170°	43		
3	Red Beach Prep	543468	5	100x100	170°	43		
5	Red Beach Prep	543464	5	100x100	170°	43		
7	Red Beach Prep	549461	10	100x100	170°	43		
9	Red Beach Prep	551459	15	100x100	170°	43		
11	Red Beach Prep	552451	15	100x100	170°	43		
13	Red Beach Prep	554463	10	100x100	170°	43		
15	Red Beach Prep	552452	10	100x100	170°	43		
2	Red Beach Prep	546456	10	100x100	170°	43		
4	Red Beach Prep	547454	10	100x100	170°	43		
6	Red Beach Prep	548452	15	100x100	170°	43		
8	Red Beach Prep	548456	10	100x100	170°	43		
10	Red Beach Prep	549454	10	100x100	170°	43		
12	Red Beach Prep	550457	15	100x100	170°	43		
14	Red Beach Prep	551455	15	100x100	170°	43		
20	Green Beach Prep	551419	5	100x100	180°	43		
21	Green Beach Prep	552417	5	100x100	180°	43		
22	Green Beach Prep	552415	5	100x100	180°	43		
23	Green Beach Prep	552413	5	100x100	180°	43		
24	Green Beach Prep	554417	10	100x100	180°	43		
25	Green Beach Prep	555415	10	100x100	180°	43		
26	Green Beach Prep	560400	25	100x100	170°	43		
27	Green Beach Prep	562391	30	100x100	180°	43		
TOTAL AMMUNITION						989		

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H.2 SCHEDULE OF FIRES

CLASSIFICATION

Copy no. ____ of ____ copies
II MEF & LF (TF-165)
CARTAGENA, SPAIN
150900 May 19XX
Msg. Ref:

ENCLOSURE 2 (Schedule of Fires, D-Day) to TAB C (Naval Gunfire Plan) to APPENDIX 12 (Fire Support) to ANNEX C (Operations) to Operation Order 1-XX

Time Zone: B

INSTRUCTIONS

1. () All ammunition shown in this schedule is HC or AAC unless otherwise designated, requested, or directed.
2. () Fires over open emplacements prior to the landing beach preparation will employ air bursts unless otherwise requested by an adjusting agency.
3. () Landing beach preparation fires over open emplacements will employ air bursts until the first wave passes shoreward of the fire support ships. Thereafter, projectiles will be set for impact bursts.
4. () Make maximum use of air and offshore spot to observe and adjust landing beach preparation fires.
5. () Prearranged neutralization fires on call will be observed and adjusted whenever possible. Make maximum use of air and offshore spot until SFCs are operating ashore.
6. () When SFCs establish communications with their assigned fire support ship, call fires will be executed as requested.
7. () If a scheduled target must be repeated, one-half of the amount of ammunition indicated for the target in this schedule of fires will be fired.
8. () During the period H-60 minutes until H-5 minutes, ships allocated ammunition for targets of opportunity will concentrate on targets in their assigned zone of fire.

BY COMMAND OF MAJOR GENERAL WHITE

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Chief of Staff

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G-3

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SCHEDULE OF FIRES, D-DAY

DISTANCE OF LEADING WAVE FROM BEACH II (yds)																				
7000										1100										
ONE	TWO	THREE	FOUR	BMNT	FIVE	SIX	SEVEN	EIGHT	NINE											
SHIP	A & F	BTRY	AMMO			II-30	II-5	II+2	II+30											
1	DD-945	OS 2dMARDIV	57/54	250	ZF-3,4 NZ1010 NZ1011 NZ1016 T/O	26 27			AS REQUESTED											
		5260		FSA-II 48 30 200	43 43		200													
2				210																
3	DD-944	OS 2dMARDIV	57/54	1500	ZF-7,9 NZ1014 NZ1111 T/O	53 54			AS REQUESTED											
4		5260		697	FSA-V 33 28 100	43 43			200											
5	DD-970	OS 2dMARDIV 00	57/54	1200	ZF-7 NZ1007 NZ1109 T/O	7 9 11 13		ZF-1,11 NZ1018	AS REQUESTED											
6		5260 / 5130		902	FSA-III 35 35 80 80 100	43 43 43 43	FSA-IV 50	200												
7	DD-942	OS 6thMAR	57/54	1500	ZF-8 T/O				AS REQUESTED											
8		5260		650	FSA-IV 100				300											
9	DD-714	OS 6thMAR	57/54	1800	ZF-2,6 T/O NZ1105 NZ1104 NZ1004	4 6 15			AS REQUESTED											
10		5260		984	FSA-III 100 70 70 35 30	43 43 43		300												
11	DD-941	DS 1/6	57/54	1200	ZF-1 NZ1012 NZ1101 NZ1018 T/O	1 3 5	ZF-1		CALL FIRES											
12		5010		999	FSS-3 40 110 70 100	43 43 43	FSA-III	400												
13	DD-943	DS 2/6	57/54	1800	ZF-2 NZ1015 NZ1001 T/O	2 8 10 12 14	ZF-2		CALL FIRES											
14		5030		1012	FSS-1 42 42 33 30 100	43 43 43 43 43	FSA-III	400												
15	DD-931	DS 3/6	57/54	1500	ZF-9,10 T/O	50 51 52 55			CALL FIRES											
16		5050		922	FSA-V 200	43 43 43 43		400												
17	DD-946	OS 8thMAR	57/54	1200	ZF-3,4 T/O	22 23 25 21			AS REQUESTED											
18		5260		922	FSA-II 200	43 43 43 43		300												
19	DD-969	OS 8thMAR	57/54	1000	ZF-5,8 T/O	43 44 45 40		NZ1013	AS REQUESTED											
20		5260		577	FSA-I 100	43 43 43 43		55	100											
21	DD-938	DS 1/8	57/54	1800	ZF-3 T/O	20 24		ZF-3	CALL FIRES											
22		5070		936	FSS-2 200	43 43	FSA-II	400												
23	DDG-23	DS 2/8	57/54	1000	ZF-5 T/O	41 42			CALL FIRES											
24		5090		636	FSA-I T/O	43 43		300												
25	DD-933	DS 3/8	57/54	1500	ZF-4 T/O NZ1110	30 31 32 33			CALL FIRES											
26		5110		817	FSA-II 100 95	43 43 43 43		300												

H.3 RADAR BEACON PLAN

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Copy no. ____ of ____ copies
II MEF & LF (TF-165)
CARTAGENA, SPAIN
150900 May 19XX
Msg. Ref:

ENCLOSURE 4 (Radar Beacon Plan) to TAB C (Naval Gunfire Plan) to APPENDIX 12 (Fire Support) to ANNEX C (Operations) to Operation Order 1-XX

Ref: (a) NWP 3-09.11M, Supporting Arms in Amphibious Operations

Time Zone: B

1. () GENERAL

- a. () This enclosure contains instructions for the employment of the AN/UPN-32, radar beacon.
- b. () For additional information on the employment of the radar beacon, see reference (a).

2. () MISSION

The mission of radar beacon teams is to provide fire support ships with an electronic aid to navigation.

3. () EMPLOYMENT

- a. () Two radar beacons will be established ashore on D-day.
- b. () Initial locations, antenna azimuths, range errors, and codes are:

	<u>Beacon #1</u>	<u>Beacon #2</u>
Responsibility	Team No. 1	Team No. 2
Code Word	Generator One	Generator Two
Zone	RLT _____	RLT _____
Location (Approx)	_____	_____
Antenna Height	_____	_____
Range Error (Yds)	_____	_____
Code Signal	_____	_____
Frequency	_____	_____

c. () Coordinating Instructions

- (1) () When ashore, survey control will be established by the 10th Marines.
- (2) () For transmitting and receiving frequencies of the beacon, see the COMMUNICATIONS PLAN.

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- (3) () Units will provide security for beacon team established in their zones of action.
- (4) () Beacon data will be provided to CTG ____ . ____ (Fire Support Group) over the naval gunfire control net. CTG ____ . ____ will make assignments as required.
- (5) () The code word "Generator" will be used when referring to radar beacons in voice radio transmissions.

ACKNOWLEDGE RECEIPT

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APPENDIX I

Supporting Arms Coordination During Amphibious Assaults

I.1 GENERAL

This appendix presents various situations which illustrate the functioning and cooperation between the supporting arms coordination agencies of the ATF necessary to coordinate supporting arms during an amphibious assault.

I.1.1 Background. During an amphibious assault, the staggered activation of the FFCC and FSCCs ashore presents a set of fire support coordination problems not found in most other military operations. Initially, the supporting arms coordination center (SACC) is the only agency capable of coordinating supporting arms. At H-hour the maneuver companies land and start requesting fires. Then the headquarters of the maneuver battalions land and establish their FSCCs. Lastly, regimental and division headquarters land and establish their FSCCs. Usually, FSCCs are incapable of coordinating active missions before the FSCCs have landed.

It must be remembered that ship-to-shore radio communications are very easy to jam. The less dependent supporting arms coordination is on these circuits, the better. This dependence can be minimized by coordinating fires at the lowest echelon capable of coordinating the mission.

The evolution of the communication system that supports the evolving fire support coordination system is detailed in Appendix G.

I.2 EVOLUTION OF SUPPORTING ARMS COORDINATION DURING AMPHIBIOUS ASSAULTS

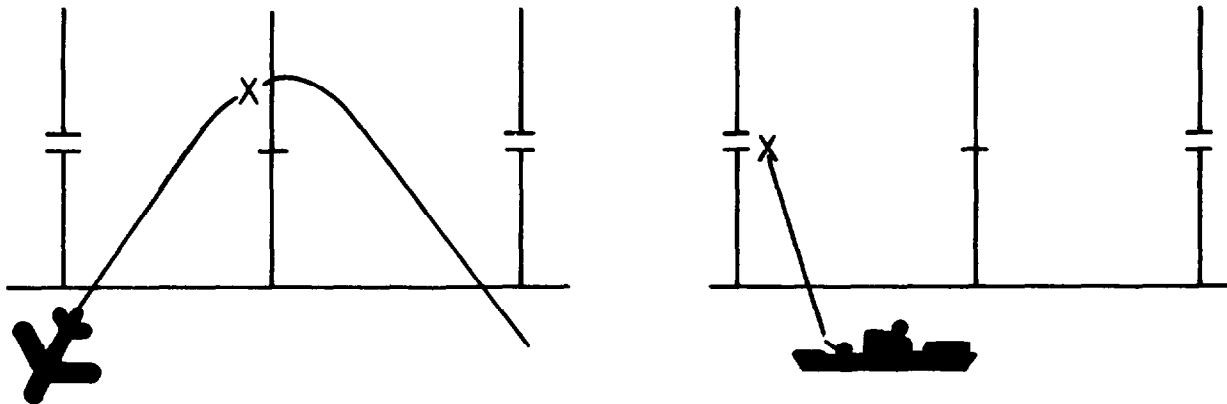
Figures I-1 through I-8 illustrate the fire support coordination circumstances which will probably arise during an amphibious assault. They also assign specific responsibilities for fire support coordination in each of these sets of circumstances.

To facilitate fire support coordination and minimize dependence on ship-to-shore communications, LF units will coordinate laterally when clearance is required from another LF unit. Thus, if a battalion desires to fire on a target in the area of an adjacent battalion, the first battalion's FSCC will acquire the necessary clearance directly from the second battalion's FSCC. The SACC will assist by relaying the request for clearance, but it cannot grant the clearance for the second battalion. Clearance from the SACC is not needed.

Situations shown in Figures I-1, I-2 and I-3 will occur immediately after the first companies have landed. Careful study of the situation described in these figures shows a very poor situation. The limited radio nets available to the companies for fire support coordination and the need for the companies to coordinate with each other directly is certain to result in confusion and inadequate coordination. It is often suggested that better procedures should exist than are reflected in the required section of Figures I-1, I-2, and I-3. What is really needed is the battalion FSCCs to land and assume their responsibilities (the situation shown in Figures I-4 through I-8). For this reason, every effort should be made to establish FSCCs ashore as soon as possible.

Description:

1. Assault is in early stages.
2. No battalion FSICC established.
3. A unit ashore requests CAS or naval gunfire (NGF).
4. Aircraft and rounds will travel only through the airspace of the requesting unit.

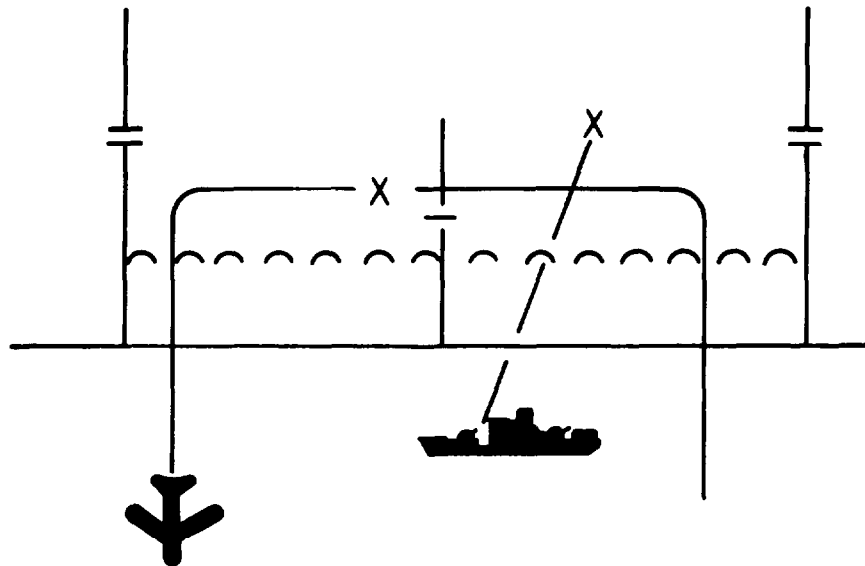


Required:

1. For CAS missions, route of aircraft included in JTAR.
2. Navy TACC informs SACC of request for CAS and route of aircraft.
3. SACC checks route of aircraft against NGF trajectories as doublecheck. Primary responsibility for coordination rests with elements ashore.
4. SAC and landing force FFCC representatives approve use of a CAS and so inform Navy TACC.

Figure I-1. Fire Support Coordination (Situation 1)

1. Assault is in early stages.
2. No FSCCs ashore.
3. Units ashore request CAS and NGF.
4. Aircraft and rounds traveling only through the airspace of the requesting battalion.
5. Trajectory of NGF and path of aircraft cross.

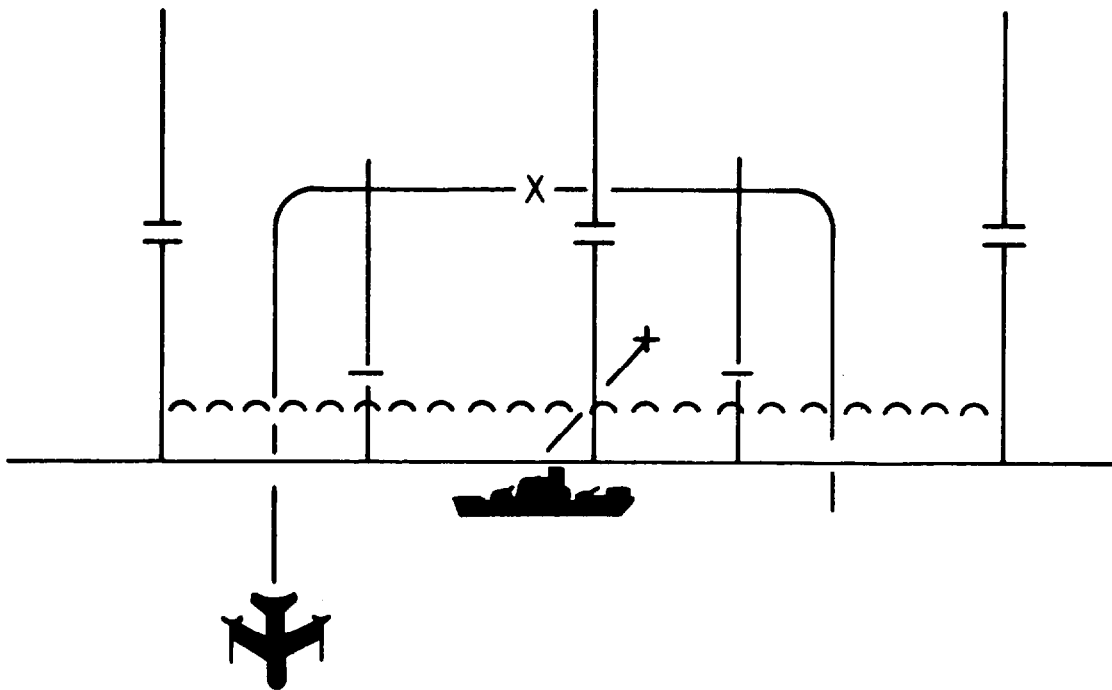


1. Companies coordinate missions laterally.
2. Route of aircraft included in the JTAR.
3. Navy TACC informs SACC of request for CAS and route of aircraft.
4. SACC checks route of aircraft against NGF trajectory as doublecheck. Primary responsibility for coordination rests with elements ashore.
5. SAC and landing force FFCC representatives approve use of a CAS and so inform Navy TACC but leave coordination to units ashore.

ORIGINAL

Description:

1. No battalion FSCCs established ashore.
2. Units ashore request NGF or CAS.
3. Aircraft or NGF rounds will cross adjacent unit's airspace or impact in adjacent unit's area.



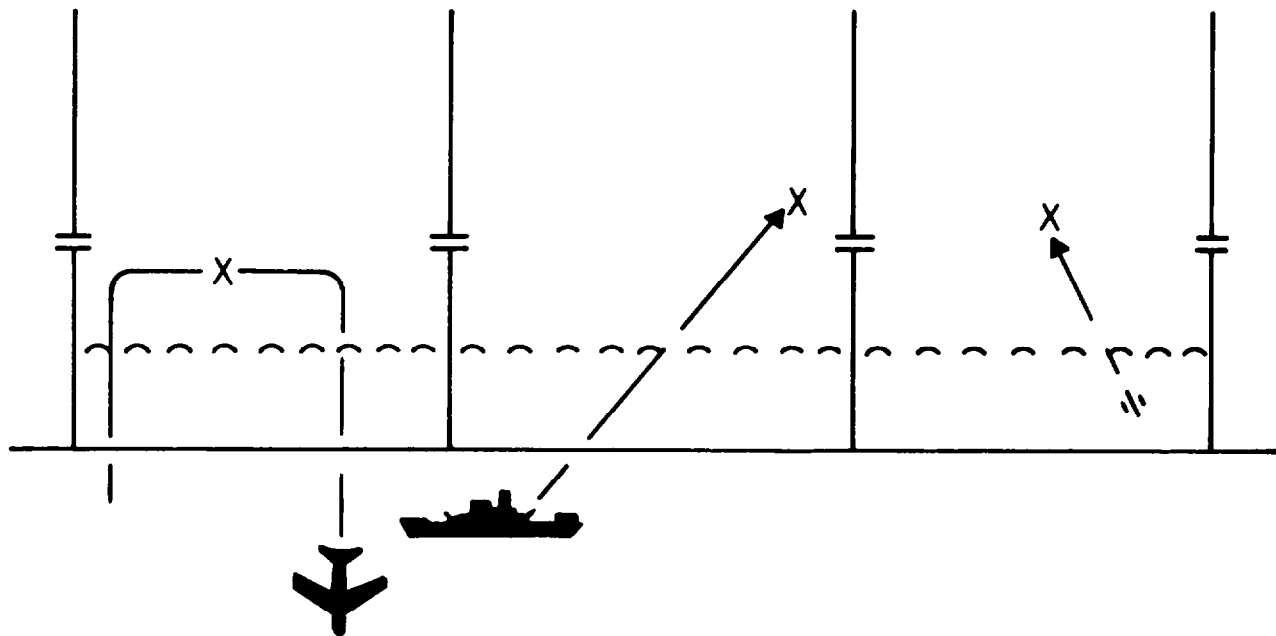
Required:

1. Companies coordinate missions laterally.
2. **Route of aircraft included in the JTAR.**
3. **Navy TACC informs SACC of request for CAS and route of aircraft.**
4. SACC checks route of aircraft against NGF trajectory as doublecheck.
Primary responsibility for coordination rests with elements ashore.
5. **SAC and landing force FFCC representatives approve use of a CAS and so inform Navy TACC but leave coordination to units ashore.**

Figure I-3. Fire Support Coordination (Situation 3)

Description:

1. Battalion FSCCs established ashore.
2. Target is within boundaries of battalion and can be hit by artillery, NGF, or CAS without a round or aircraft entering airspace of adjacent unit.



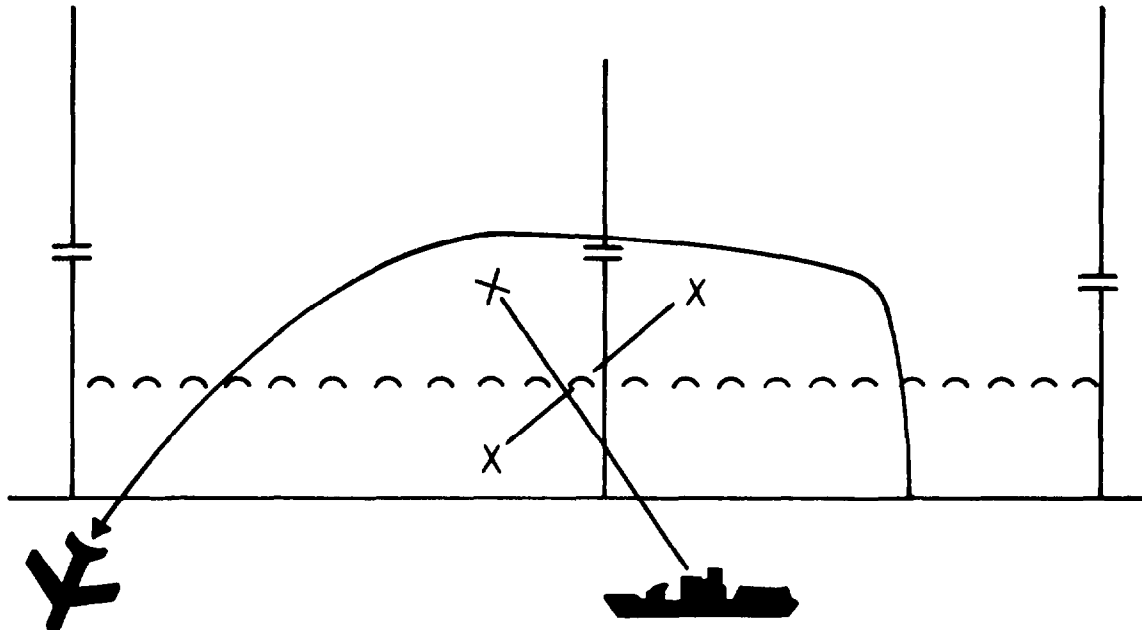
Required:

1. For CAS mission, proposed route of aircraft is submitted in the JTAR.
2. Battalion FSCC clears missions in its zone.
3. Navy TACC informs SACC of request for CAS.
4. SAC and LF FFCC representatives approve use of a CAS and so inform Navy TACC leaving coordination to battalion FSCC ashore.
5. Mission results are reported to SACC only if the target is significant.

Figure I-4. Fire Support Coordination (Situation 4)

Description:

1. Battalion FSCCs established ashore.
2. Target is in zone of adjacent battalion, or trajectory or path of aircraft will pass through airspace of adjacent battalion.



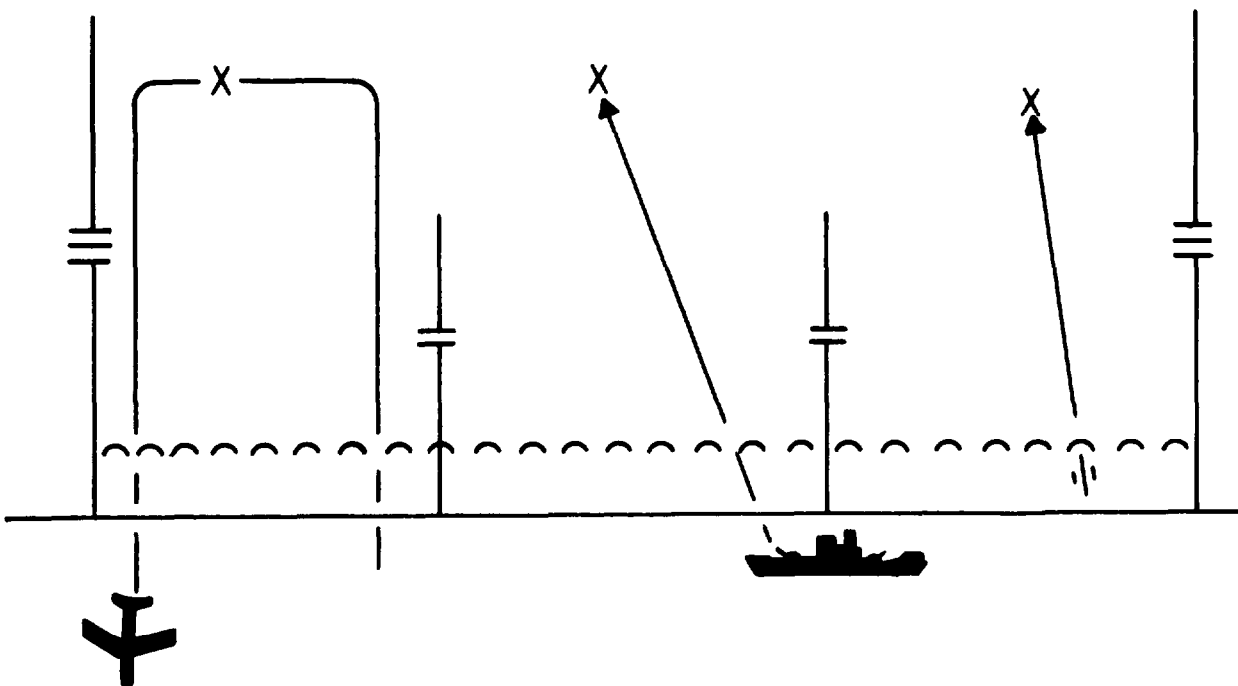
Required:

1. For CAS mission, proposed route of aircraft is submitted in the JTAR.
2. FSCC of battalion desiring to fire mission or use CAS gets clearance to fire into adjacent battalion's zone of action or to use airspace of adjacent battalion by direct liaison with adjacent battalion's FSCC.
3. Navy TACC informs SACC of request for CAS.
4. SAC and LF FFCC representatives approve use of a CAS and so inform Navy TACC leaving coordination to battalion FSCC ashore.
5. Mission is reported to SACC by FFCC only if target is significant.

Figure I-5. Fire Support Coordination (Situation 5)

Description:

1. Battalion FSCCs established ashore.
2. Regimental FSCC not established.
3. Target is outside of any battalion's zone of action, but within the regiment's zone.



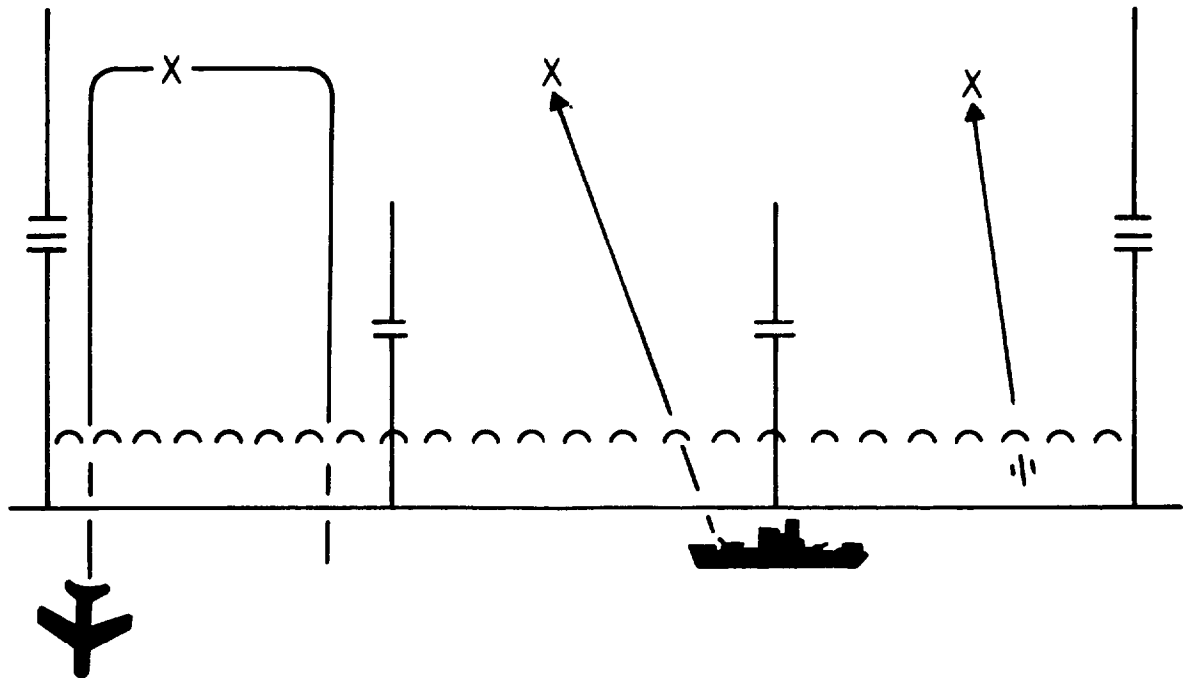
Required:

1. FO, forward air controller (FAC), or shore fire control party (SFCP) request fire. FAC will include route of aircraft in JTAR.
2. Battalion FSCC withholds clearance.
3. Battalion FSCC requests clearance from SACC.
4. SACC checks on units operating in the area and grants or denies clearance.
5. Battalion FSCC clears mission or directs its termination.
6. TAREP submitted to SACC at end of mission.

Figure I-6. Fire Support Coordination (Situation 6)

Description:

1. Battalion FSCCs established ashore.
2. Regimental FSCC established ashore.
3. Target is outside of any battalion's zone of action but in the regiment's zone of action.
4. Observers with battalion units are requesting fires.



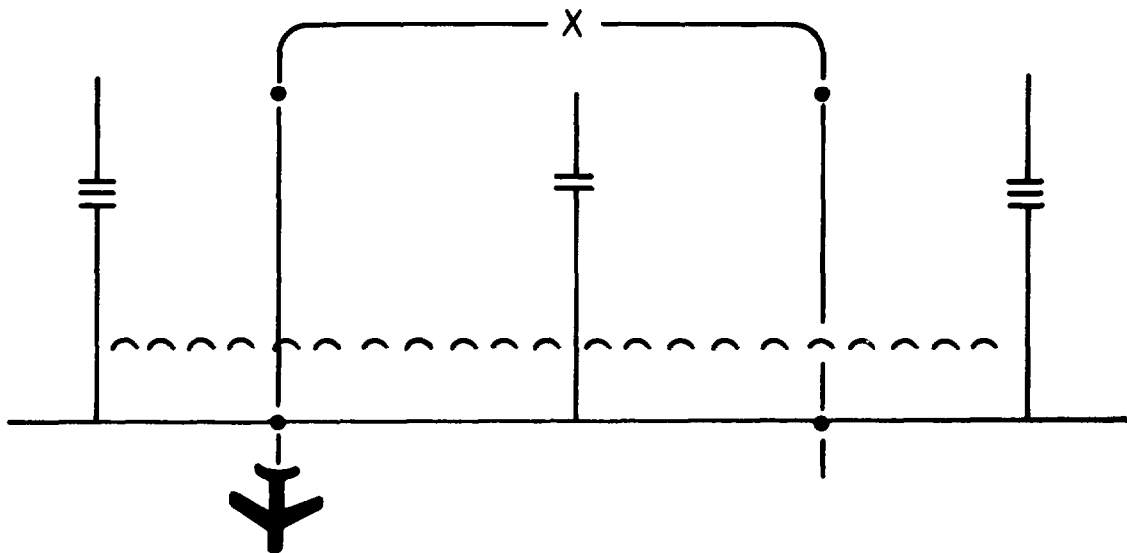
Required:

1. For CAS mission, proposed route of aircraft is submitted in JTAR.
2. Battalion FSCCs request and are granted or denied clearance by regimental FSCC.
3. Mission results are reported to SACC only if the target is significant.

Figure I-7. Fire Support Coordination (Situation 7)

Description:

1. FFCC and all FSCCs established ashore, but responsibility for the overall coordination of supporting arms has not yet been passed to CLF.
2. SACC/CLF (MAGTF) desire to hit target beyond ground combat element's zone of action with air.



Required:

1. SACC determines route of aircraft with assistance of Navy TACC.
2. SACC provides entry and exit of points of aircraft and probable times of mission to GCEs FSCC.
3. GCEs FSCC coordinates aircraft and supporting arms.
4. FSCCs request/recommend changes to route/time as required by tactical situation.

Figure I-8. Fire Support Coordination (Situation 8)

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